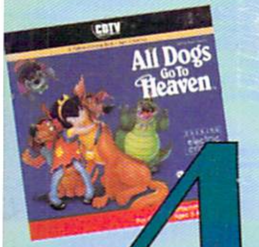

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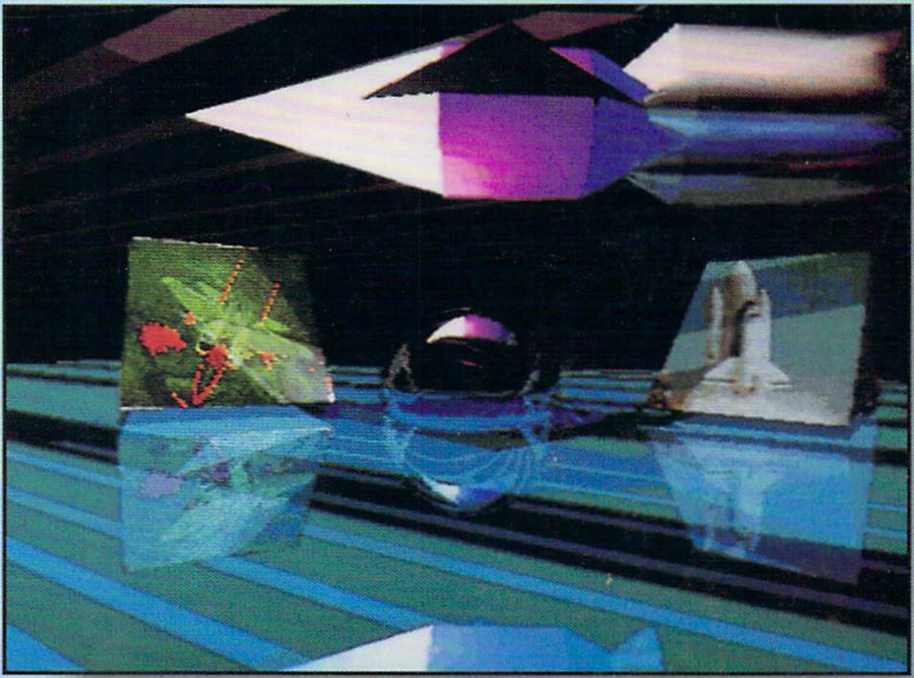
Black Belt's HAM-E:

Image Processing and Display System



Marbling Techniques:

Writing It In Stone With DPaint III

REVIEWS:

Professional Page, MaxiPlan Plus, Pixel 3D, Electric Thesaurus and more!

0 74470 74710 9 06

CONTENTS

HAM-E brings with it two new modes that are available in all resolutions: "Register" mode (256 pixel-accurate colors) and HAM-E mode (262,144 HAM-like colors). Turn to page 22 for a closer look at Black Belt's new product.

IN THIS ISSUE

HAM-E..22
by David Johnson
Black Belt's high-quality, low-cost, device that can display and manipulate images.

CDTV..47
Over 60 dynamic titles (with more on the way), CDTV for A2000 and A3000 users, and more.

Writing It In Stone....................................62
by Brandon Nelson
Here's an easy way to create a "marble" texture in DeluxePaint III.

Nelson's marbling texture put to use.

PROGRAMMING

Practicalities 71
by Randy Finch
Practical uses of Finch's previously documented Matrix.library.

The Art of Selecting and Setting Gadgets in C.......................77
by Jim Fiore
The third and final installment in the "Crunchy Frog" approach to programming.

DEPARTMENTS

Editorial 3

Feedback...12

List of Advertisers....................................80

Public Domain Software 92

And Furthermore 96

Cover by
Ernest P. Viveiros, Sr.

Amazing COMPUTING For The Commodore AMIGA

Volume 6
Number 6
June 1991

COLUMNS

New Products And Other Neat Stuff 8
Theme Park Mystery, Trial By Fire, and AlterImage top the list.

Medley 29
by Phil Saunders
Setting up and optimizing your MIDI equipment with emphasis on low-budget systems.

Bug Bytes 37
by John Steiner
A workaround for the public domain program Runback. Plus, a revised version of the PageStream 2.1 PostScript driver.

Diversions 39
For all you basketball fans out there, take a look at Magic M.V.P. Johnson—it's sure to grab your attention. If basketball isn't your game, try The Nightbreed where you assume the role of Aaron Boone, a man accused of committing several murders.

Les Manley in Search For The King

PD Serendipity 43
by Aimée B. Abren
The latest additions to the Fred Fish Collection, including a disk-copying program and a replacement command for AmigaDOS's List command.

Roomers 59
by The Bandito
There are many contenders in the 24-bit paint war and The Bandito takes a closer look.

C Notes From The C Group 67
by Stephen Kemp
A new skeletal program to "jump start" utility programs.

REVIEWS

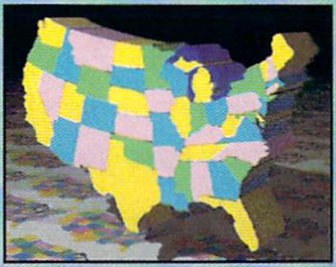
Professional Page 2.0 18
by Rick Broida
This desktop publishing package has the look and feel of a new sports car: sleek new lines, a high-output engine, and an eye-popping sticker price.

MaxiPlan Plus 2.0 34
by Chuck Raudonis
The Disk Company's full-featured business graphics system has more than just database and spreadsheet capabilities.

Disk Labeller 50
by Jeff James
Create and customize your own disk labels easily with Software Technology's disk labelling program.

Electric Thesaurus 50
by Jeff James
A look at Softwood's disk-based thesaurus, a much-needed addition to Amiga software.

Pixel 3D 55
by Frank McMahon
Axiom Software sets out to make object creation easier.



One of the included pictures from Pixel 3D's Demos draw.

You "MUST SEE" the May issue of AC!

AMIGA 3000 TOWER: Should you wait?

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EDITORIAL CONTENT

Summertime Vacations & Commodore's Gold Service

OK, IT'S JUNE AND we're talking vacation here. It is a longstanding tradition—at least in America—to utilize the free time we have garnered from our jobs to pack the family in the car and drive somewhere to spend a few days doing anything that we hope will give us memories for a lifetime. All right, maybe we're not as car-dependent these days. We tend to pick vacation areas either closer to home or far enough away so that we can take advantage of the airline's special rates. But either way, we have decided that there will be some time this summer set aside to enjoy far from our normal routine.

I could not agree more. Those times spent away from the normal everyday events are special. Hey, the sun is warm and the water is cool. Maybe you prefer the outdoors and camping (in its varying degrees of creature comfort from a simple backpack to an RV complete with air conditioning and television—OK, no cable). Possibly your treat to yourself this year is to visit one or more of the national parks, the national historical areas, the many amusement parks, or that family member whom you never seem to see. Whatever your plans, there is one little vacation spot that you should absolutely make an effort to visit—an Amiga dealer.

"What's this?" you say. "I can't drag my spouse into an Amiga dealership on our vacation. I spend enough time there during the rest of the year. And besides, wouldn't that be disloyalty to my regular dealer, the same person who has painstakingly brought me from a user who didn't know how to plug in the keyboard to a user who now programs routines through ARexx."

I am not suggesting that people spend their entire vacation camped out in the parking lot of an Amiga dealership. However, the ideas and products you learn about through the marketing of another dealer can help your own dealer. Remember that this is an Amiga community and that we should all be doing what we can to see that more people understand what the Amiga can do and how we can use it. If you see something exciting on your travels, don't you tell your friends? Now tell your Amiga dealer what you have seen.

...dial 1-800-66 AMIGA (662-6442) and an operator will be able to tell you where you can find an authorized Amiga dealer.

The idea behind visiting an Amiga dealership is to improve your own understanding and concept of the Amiga. At AC, we would have total knowledge of every product available for the Amiga, if we were perfect. But since no one is perfect, we use everything we can to learn more.

I love to see different computer dealerships. This includes walking into a few of those dealerships that sell other kinds of computers. Why? That's the way we learn. Each dealer has a particular interest and style. Every dealership is a combination of the needs of his customers, and the personality and talents of the dealer and his staff.

How many of us have decided that we like one supermarket over another by a little thing like the cost of tea or their bottle return policy? The same is true with dealerships. What we see and appreciate in one would be of help to your local Amiga dealer.

Then there is the assortment of products. Unless you live in a city surrounded by thousands of Amiga users, you probably have never seen an Amiga store stocked with every piece of software and hardware available. Don't worry, I don't think any of us have. However, a visit to a different area and a different dealer does allow us the opportunity to see what that dealer feels is exciting to his customers.

Sometimes it is a small utility that your dealer does not carry because he saw no use for it; yet you needed it. The dealer you visit on vacation may not only understand why it is important, but he has made it available to his customers. The idea to remember is that, while you are visiting dealerships with basically the same needs and opportunities, they all have individual traits.

A store situated in a college area may be stocked with desktop publishing packages, the latest in word processing tools and good printers at decent price levels because this is what

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The multitasking Amiga 3000 series has it all. 32-bit Motorola 68030 processor. Built-in hard disk control. Interlaced and non-interlaced (31.25 kHz) high resolution video. And four voice two-channel sound.

In fact, Byte Magazine said "Commodore has produced the most complete multimedia platform you can get in a single box."

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the majority of his clientele needs. There will also be a high level of programming tools and an even higher level of games because these will also sell. However, a store in Los Angeles may see video as the main point of their customers' interest and stock the shelves with the latest graphics and video tools.

Variety is a main feature of visiting someplace different. The reason your family decides to pack up the car and drive to a new vacation area is the same reason you should take a moment to see what else is available to you in Amiga computing.

Commodore has made it easy to find a dealer in any area of the country. If you know the zip code of the area you are going to (or through) dial 1-800-66 AMIGA (662-6442) and an operator will be able to tell you where you can find an authorized Amiga dealer. One word of caution: this number is normally used to qualify customers between those interested in seeing an Amiga 500 at a department store and the more adventurous Amiga customer who is looking for a "professional" application. Be specific in your request and ask for as many alternatives as possible. Then take a moment this summer to see how other people work with the Amiga. I guarantee that your ideas of the Amiga will be expanded and that you will remember that moment almost as clearly as a ride on *The Beast*.

COMMODORE COMES THROUGH

Commodore has done a great deal to make the Amiga one of the most professional computers in the market. From the announcement of "Gold Card" service options to new owners of Amiga 2000 and Amiga 3000 computers, to a new leasing option, Commodore is offering the professional Amiga user the kind of support needed to make businesses consider the Amiga completely.

I am able to document the support that Commodore has placed in the market firsthand. Last month, I discussed the fact that another Amiga 3000 had been purchased for our operations at AC (incidentally, some of the vendors' ads in this issue were provided directly on disk and placed on film into the magazine using some of our new equipment). Unfortunately our new A3000 did not completely survive its introduction into our operation. One day the computer bombed and had to be rebooted. Then there was nothing. I immediately called Commodore.

Since I had purchased the A3000 directly from Commodore they were, in effect, my dealer. I was told on the phone that since the machine was purchased through Commodore they would need to activate my Gold Card status. This painless procedure is normally performed by your dealer at the time you purchase your computer. I was also told that if the Amiga had not been purchased from an authorized Amiga dealer, Commodore could not have activated the Gold Card service.

...if the Amiga had not been purchased from an authorized Amiga dealer, Commodore could not have activated the Gold Card service.

SO WHY A GOLD CARD?

Gold Card service is extremely important because it gives your computer investment one of its best insurances available. Gold Card service guarantees that if anything goes wrong with your Amiga 2000 or Amiga 3000 system, a technician will perform repairs of the product on-site. You do not need to carry the machine and supporting equipment into your local dealer. Just place a call on the 800 number supplied and your dealer or Commodore will schedule a repair the next day.

In my case, they ran into a little trouble getting the necessary hard drive shipped in time and the repairs were done in two days. But the technician appeared first thing that morning (the hard drive was actually there earlier—I arrived at the office to find the delivery person waiting at the door).

The technician thoroughly reviewed the machine, replaced the drive, reformatted it, and reinstalled the software. All in all, it was a great job and one that is as good or better than is available for any other computer platform.

Although I have seen several of the MS-DOS clone vendors offer on-site service, they have been limited to six months. You can obtain longer service contracts; however this requires that you bring the hardware to the dealer or repair center. When you are managing a business, this is one company trip you do not want to make.

Commodore's system allows either the dealer (who must be approved) or one of their nationwide technicians to be dispatched directly to your business and perform whatever corrective measures are required. With a single call to CBM's 800 number, everything is done to see that you are up and running as soon as possible.

In the case of the hard drive that could not be shipped on time, I received a call not only from the technician who apologized and informed me as to when we would be getting the drive and the repair service, but I also received a call from his supervisor.

In the area of customer service, Commodore is providing the kind of attention to detail in their Gold Card service program that is pure gold.

Sincerely,

Don Hicks
Managing Editor

The Ultimate Amiga Multi-function Card

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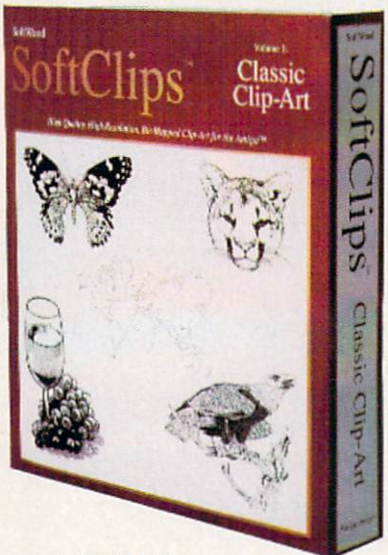
new products
& other neat stuff

SOFTCLIPS

New from **SoftWood** is **SoftClips**, a multiple volume collection of high resolution, bitmapped clip art. SoftClips can be used with any Amiga program that supports IFF brushes. They may be full size or scaled and sized to produce output on any printer, whether 9-pin, 24-pin, ink jet, or laser. Currently this collection contains four volumes: Classic Clip-Art, People Clip-Art, Collectors Clip-Art, and Animal Clip-Art. Each volume contains four disks and contains a user manual that displays all the images included in the product.

Volume 1: Classic Clip-Art contains over 1300 pictures designed to add a touch of class to any printed materials. Volume 2: People Clip-Art contains over 490 pictures of people in various situations that will appeal to users of all ages. Volume 3: Collector's Clip-Art contains over 800 pictures and graphics specially designed for use in documents, newsletters, reports, and other business, home, or educational items. Volume 4: Animal Clip-Art has over 300 pictures of many types of animals, insects, and reptiles. *Suggested retail price: $79.95 per volume. For a limited time, SoftWood and participating Amiga dealers are offering these volumes for $49.95 each. SoftWood, Inc., P.O. Box 50178, Phoenix, AZ 85076. (800) 247-8314. Inquiry #204.*



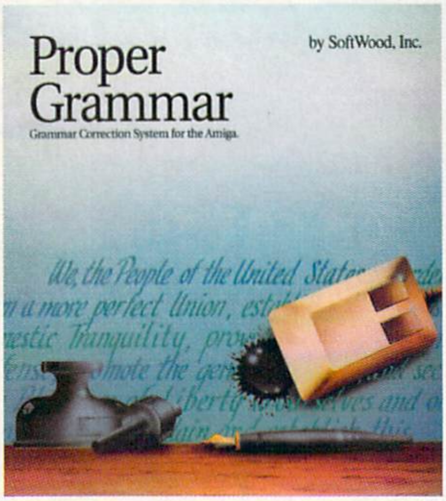
SoftClips high-resolution, bitmapped clip art from SoftWood.

PROPER GRAMMAR

Also from **SoftWood, Proper Grammar** takes the guesswork out of good grammar by detecting ninety-five percent of all writing errors. It identifies and corrects embarrassing mistakes, making it a valuable proofreading tool designed to improve the user's writing.

Proper Grammar uses the Houghton-Mifflin CorrecText Grammar Correction System, a powerful expert system that uses context-sensitive rules of grammar to analyze writing and to detect and correct errors in syntax, usage, punctuation, spelling and style. As possible errors are found, Proper Grammar highlights them and suggests—rather than makes—changes, giving the user the final decision about which revisions to implement.

Proper Grammar works with ASCII files created in text editors, contains an ARexx port, and supports the Amiga Clipboard Device. *Suggested retail price: $99.95. SoftWood, Inc., P.O. Box 50178, Phoenix, AZ 85076, (800) 247-8314. Inquiry #205.*



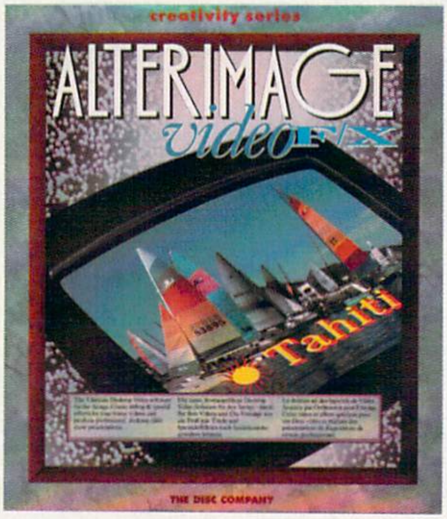
Proper Grammar from SoftWood makes the most of the user's writing skills.

ALTERIMAGE VIDEO F/X

AlterImage Video F/X, a new desktop program from **The Disc Company**, lets users give a professional touch to their videos by adding titles, graphics, and special effects. With a video source such as a camcorder, plus a VCR and a genlock video interface, AlterImage Video F/X provides users with all the software tools to transform the Amiga into a complete desktop video workstation right at home.

The user can choose from a variety of title fonts and colors, plus a complete library of clip-art graphics specially designed for superimposing over video images.

AlterImage Video F/X is provided on three diskettes: one containing the program, one containing the font library, and one containing the video clip art library. This program will run on any Amiga with at least 1MB of memory. *Suggested retail price: $199.95. The Disc Company, U.S.A., 11040 Santa Monica Blvd., Los Angles, CA 90025; Phone (213) 478-6767, ext. 106; FAX (213) 477 8688. Inquiry #206.*



AlterImage Video F/X lets users add professional touches—titles, graphics, and special effects—to their videos.

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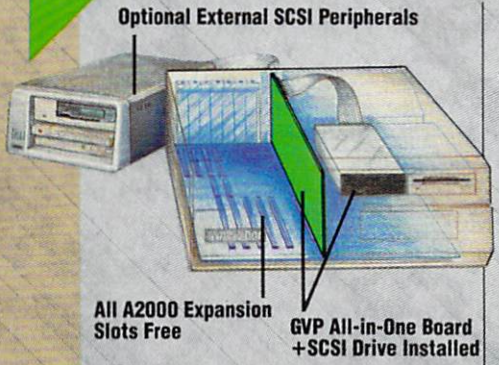
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GVP All-in-One Board +SCSI Drive Installed

Check out these features:

- ✓ The perfect companion for NewTek's Video Toaster.™
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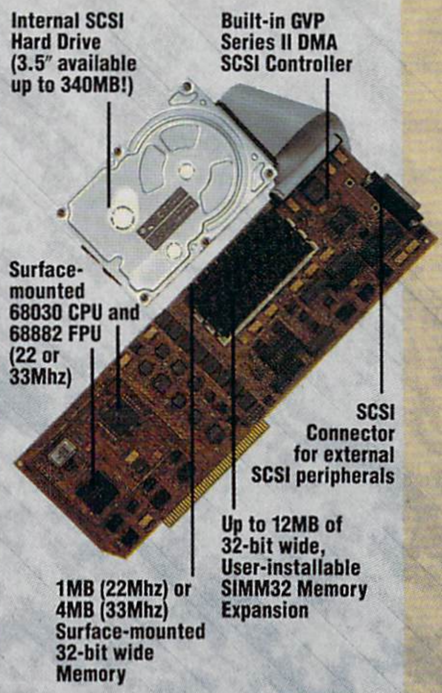
- ✓ Up to 16MB of 32-bit wide memory expansion. 4MB minimum factory installed memory on 33Mhz version, 1MB minimum for 22Mhz.
- ✓ GVP's new custom 32-bit wide, 1MB or 4MB, SIMM32™ memory modules offer flexible, easy-to-install memory expansion. 22Mhz model has 1MB factory installed memory, expandable to 13MB. 33Mhz model has 4MB factory installed memory, expandable to 16MB.
- ✓ On-board high-performance "Series II" auto-booting SCSI controller with factory installed FAAASTROM SCSI driver and SCSI connectors for attaching both external and internal SCSI peripherals.
- ✓ Direct DMA access to the full 16MB range of 32-bit wide memory expansion by the on-board SCSI controller. Due to the A2000 bus architecture, this is ONLY possible when SCSI controller is placed directly on the 68030 CPU bus (as is the case with the A3000!). Provides ultimate SCSI hard disk performance!
- ✓ GVP's legendary FAAASTROM SCSI driver supports virtually all SCSI devices currently on the market, including hard disk drives, CD-ROM drives, Magneto-Optical drives, removable media drives and tape drives.
- ✓ Switch to 68000 mode by simply clicking on our new "68000 Mode" Icon, or include our special "mode switching" utility in your startup-sequence and select required mode each time system is rebooted, by holding down mouse buttons.
- ✓ Provides the ultimate expandability of your A2000 system. Plugs into the "CPU accelerator" slot, thereby leaving ALL FIVE A2000 expansion slots free for future expansion.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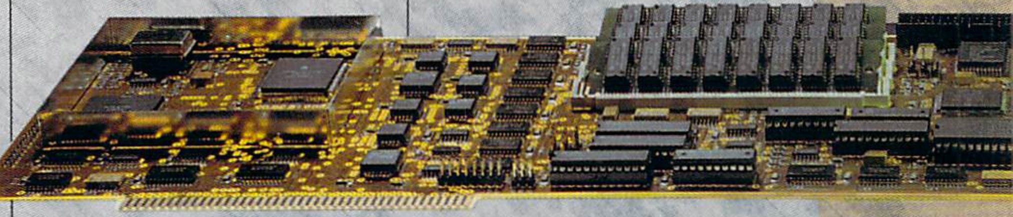

COMPARE:	A2000 +GVP All-in-One	Commodore A2500/30	Commodore A3000®
68030 CPU and 68882 FPU	Y	Y	Y
Maximum CPU clock speed available & shipping TODAY	33Mhz	25Mhz	25Mhz
Maximum 32-bit wide FAST memory on 68030 CPU board	16MB	4MB	16MB
Direct DMA access to more than 8MB of fast memory	Y	N	Y
DMA SCSI controller built-in on 68030 CPU board	Y	N	Y
Number of open Amiga expansion slots with 68030 CPU, SCSI controller and more than 4MB fast memory installed	5	3	4
RAM upgrades through easy-to-install 32-bit wide SIMM memory modules	Y	N	N

GVP

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new products

& other neat stuff

AD1016/AD1012

New from **SunRize Industries** are two digital audio cards for the Amiga. The first, **AD1016**, turns an Amiga into a complete audio workstation. The AD1016's built-in time code reader allows easy synchronization of digital audiotape to videotape. The AD1016 can record, edit, and play back direct to hard disk. AD1016 allows direct connection to CD players and Digital Audio Tapes. Studio 16, the supplied editing software, supports cut, copy, and paste as well as more advanced functions like multiband graphic EQ.

The AD1016 digital audio card plugs into an Amiga 2000 or 3000. The card can record and play back two channels of audio with 16 bits of resolution at sampling rates up to 48,000 samples per second. The sound accelerator chip is rated at 12.45MIPS, allowing the AD1016 to perform digital effects in real time. This includes graphic EQ, digital filters, echo, reverb, and noise filtering to name but a few.

The **AD1012** digital audio card, also for use with an Amiga 2000 or 3000, is the second release from SunRize Industries. This card allows users to record hours of audio to hard disk. The card can record and playback one channel of audio with 12 bits of resolution at sampling rates of up to 100,000 samples per second. Two eight-order linear phase anti-aliasing filters are provided. Also included on the AD1012 is an Analog Devices 2105 digital signal processor.

The AD1012 is a mono card; however, owners can purchase a second card at a discount. With two cards, the Studio 16 software supports stereo. *No suggested retail price has been set for either the AD1016 or AD1012. SunRize Industries, 2959 S. Winchester Blvd., Ste. 204, Campbell, CA 95008. Inquiry #207.*

AUDITION 4

Another release from SunRize Industries is **Audition 4**, a powerful editor for manipulating eight-bit digital sounds. Audition 4 makes full use of Intuition. Digitized sounds are represented graphically. Using the mouse, you can zoom in and select portions of the sound for editing. Cut, copy, paste, as well as echo, flange, or filter the selected sound. Audition 4 is written in Assembly language for speed and more memory efficiency.

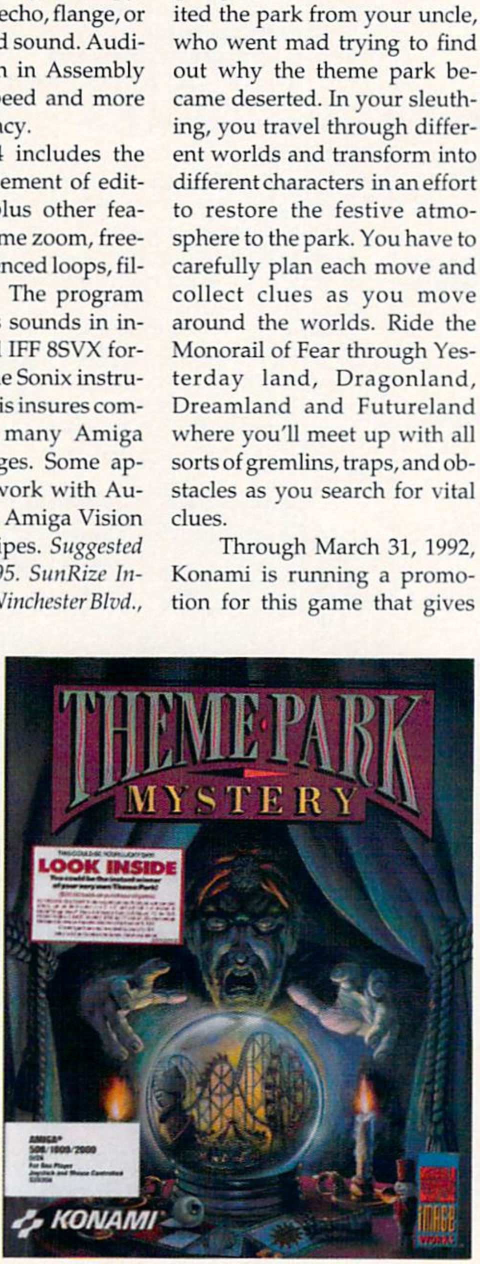
Audition 4 includes the standard complement of editing functions plus other features like real-time zoom, freehand edit, sequenced loops, filters, and fades. The program saves and loads sounds in industry-standard IFF 8SVX format as well as the Sonix instrument format. This insures compatibility with many Amiga software packages. Some applications that work with Audition 4 include Amiga Vision and Bars and Pipes. *Suggested retail price: $99.95. SunRize Industries, 2959 S. Winchester Blvd., Ste. 204, Campbell, CA 95008, (408) 374-4962. Inquiry #208.*

THEME PARK MYSTERY

Challenge your skill, courage, and reflexes with **Theme Park Mystery**, an action adventure game from **Konami/ImageWorks**.

Magic Canyon Theme Park was once a popular tourist attraction but now stands deserted. There are no customers or staff, and word is out that there is something mysterious going on there. You've inherited the park from your uncle, who went mad trying to find out why the theme park became deserted. In your sleuthing, you travel through different worlds and transform into different characters in an effort to restore the festive atmosphere to the park. You have to carefully plan each move and collect clues as you move around the worlds. Ride the Monorail of Fear through Yesterday land, Dragonland, Dreamland and Futureland where you'll meet up with all sorts of gremlins, traps, and obstacles as you search for vital clues.

Through March 31, 1992, Konami is running a promotion for this game that gives you an opportunity to inherit your very own theme park. All packages also include instant winner rub-off game cards for the chance to be reimbursed for the purchase price of the game. *Suggested retail price: $49.95. Konami, Inc., 900 Deerfield Parkway, Buffalo Grove, IL 60089, (708) 215-5100. Inquiry #209.*



Solve a mystery and return Magic Canyon Theme Park to its former glory. Someday, you may have to do this for real!

VIDEO GRAPHICS LIBRARY

Digital Designs Group has released **Earth and Planets**, the first set in its new product line of video graphics disks for the special needs of desktop video. This four-disk set contains 63 files of drawings and digitized images of moons and planets, maps and globes, and animations of the Earth spinning. All images are interlaced for NTSC video compatibility and most are overscanned. Most images, especially those designed as backgrounds, have free colors in the palette not used in the image so they can be used for titling and text. The text can then be adjusted to any desired color without affecting the background image.

Each set includes a viewer/production utility called Digital Displayer that allows you to assign the images hotkeys. These can be called up as desired for playback or videotaping. The product line will be expanded to include black-and-white clip art as well as color art designed images for multimedia productions. These will include HAM images. Also, an art disk subscription service will be offered for professionals who want to keep up to date with the latest offerings. *Suggested retail price: $39.95. Video Graphics Library Disks, Digital Designs Group, P.O. Box 593, Whiteville, N.C. 28472, (919) 642-6295. Inquiry #210.*

STELLAR 7

From **Dynamix, Inc.**, a division of **Sierra On-Line**, comes **Stellar 7**. This is a fast-paced

(continued on page 15)

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Ami-Back is a comprehensive hard drive backup utility with a number of powerful features that make it the most professional program of its type on the market.

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* Commodore standard. Applied Engineering's HD floppy does NOT work with some versions of Kickstart 2.0 at this time.

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Feedback

BRIDGE OVER OBSCURE WATERS

When I saw Gene Rawls' article on sharing the hard drive with the bridgeboard in *Amazing Computing's* February 1991 issue, it was a dream come true. I had installed a bridgeboard some time back, but as with Mr. Rawls, I found the manual somewhat confusing and was apprehensive about venturing into unknown territory with no guide.

So I set aside some time and followed Mr. Rawls' instructions step by step, but errors and left-out information turned the dream into a nightmare. There were times that I could have without a twinge strangled Mr. Rawls, and I believe that there is no jury of computer users in the world that would have convicted me. Indeed, I think they would have borne me from the court on their shoulders. Eventually, I learned a lot and I would like to correct some of the errors and hope that others don't learn the hard way, as I did.

First, to use the hard drive from both the Amiga and PC side, Mr. Rawls says, "The hard drive must be split (partitioned) into at least two parts." It makes logical sense but, *it's not so!* Partitioning is not necessary. You create a file that the Amiga knows is for PC processing. This file can coexist with the Amiga files on the same partition. Most of my difficulties came from the complications from the partitioning process. Partitioning by itself is no problem. You can partition if you want; you just don't need to.

I partitioned according to the directions into partitions DH0 and DH1. I rebooted with a copy of Workbench and initialized DH0 (a major mistake in the article here). According to Mr. Rawls, you initialize the partition for the Amiga side. (He mentions only initializing DH0.) The implication I understood and logical assumption I made at this point was that the bridgeboard would initialize the PC side according to PC protocols in a later step. This is true, but *first* you must initialize *both partitions*. You will later initialize according to PC protocols, but the partition *can't be found unless it has been first initialized to the Amiga.* I found this out the hard way in a later step.

Then according to Mr. Rawls (who, to be fair to him, agrees word for word with the Amiga manual on this point), you use the 2091 Installation Diskette and (quoting both Mr. Rawls and the manual) "click on the 'Install HD' icon, hold down the SHIFT key and double click on the Workbench icon; (only Mr. Rawls' words now) the icon remains on the screen from booting. The program then prompts for a copy of the Workbench and Extras diskettes...copy all necessary files to your hard drive." I followed the clicking instructions exactly and knew something was wrong when I got the message that 'Workbench disk write protected' etc. Why should it care? I backtracked, trying the steps again. Same message. And again, I was stuck!

Something seemed very wrong; I was left with two empty hard disk partitions and had to do something. So I took off write protection and received more strange messages. It couldn't 'read object file, object in use' for every file that it was supposed to copy. Again, I lost my nerve and backtracked, but ended up in the same place so I had nowhere to go but forward.

I proceeded, switching too frequently between the Workbench and Extras disks until I got the message, 'Can't continue, Workbench disk full.' Exactly what I had feared: the thing was writing to the Workbench disk, not to the hard drive. Now what? I finally ran Install again but this time *did not click on the Workbench icon*

➛

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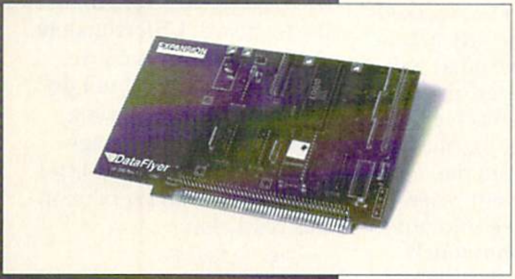
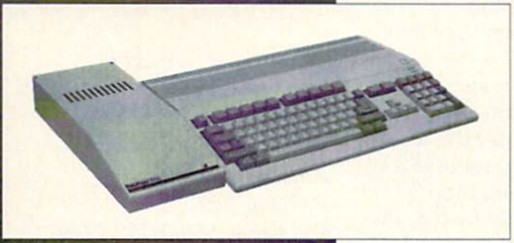


DATAFLYER 2000 $99.95

The DataFlyer 2000 interface plugs into any standard A2000. The DataFlyer2000 system comes complete with the drive preformatted. The drive attaches to the rear of the card or on the optional rails. The optional DB25 connector kit passes through the SCSI bus.



DATAFLYER 500 $189.95

The DataFlyer500 hard drive kit provides everything you need. Four screws adds your choice of drive and your done. The chassis will accept any 3.5 inch SCSI drive. All hardware and cables are included for easy installation.

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Circle 176 on Reader Service card.

and the program installed on the hard disk just fine. By clicking on the Workbench icon, I had been telling it to install on Workbench. The default for the command is DH0 so eventually everything turned out OK. But the instructions given in the article were again terribly wrong.

After a few more steps, you are told to "enter the following command from any CLI"

```
MAKEAB
<drive>:<directory>.[filename]
```

It didn't work from my CLI. My CLI never heard of this command. No reason why it should. I eventually found the command in the S directory of the PCInstall disk (page 87 of the bridgeboard user's guide also mentions that the command is on the PCInstall disk). So unless you have booted with the PCInstall diskette or have already transferred this command to your hard disk by using the BridgeInstall program, CLI isn't going to find it without some guidance. After I found out where the command was, I was told that it couldn't get to my DH1 partition, which wasn't formatted to Amiga. Eventually I figured out what I have already mentioned—that both partitions have to be initialized to the Amiga, not just one as Mr. Rawls implied. So I got the command working and set up my PC file in this partition.

Next Mr. Rawls tells us, "The Janus software looks for a file named ABOOT.CTRL in the SYS:PC/SYSTEM drawer to locate the proper device from which to boot MS-DOS." He then recommends that you create this file in this drawer. One problem here is that this drawer is on the PCInstall disk so unless you boot from that disk, it's not going to find it. What you are supposed to have done prior to both this step and the MAKEAB step was to have already installed all these things on your bootable disk with BridgeInstall, a step which Mr. Rawls doesn't mention until later. Or if you are making this file, be sure that it goes on the PCInstall disk now so that you can copy it to your hard disk later with BridgeInstall. At any rate, Mr. Rawls doesn't make this clear enough in his article.

I was in store for one more adventure, BridgeInstall. Initially, I did not understand what it was supposed to do so I told it to install on my PC partition, HD1. It then told me that it ran out of room so I realized what I had done. There was a little room on the partition not being used by the PC file and it tried to place all the PC needed files there. I was surprised to see AmigaDOS and MS-DOS coexisting on the same partition and realized then that I had never needed to partition in the first place. Anyway, I deleted all the Amiga files and tried with the right partition (DH0) given. Twice more I tried. Each time, it tried to write to DH1. I have no idea why this is so unless it tries to fit them on the same partition where the PC file is.

Eventually, I forgot about BridgeInstall and copied the relevant files to DH0 myself, tried them, and found everything working fine.

Terry Johnson
Stillwater, OK

Mr. Johnson is absolutely correct in his observation that partitioning your hard drive is unnecessary. The MAKEAB command can be used to create the pseudo-PC volume on any drive, or portion of the drive. However, I still find it useful to partition so you can easily see the amount of unused space on your Amiga section of the drive. If one half of your drive is a PC pseudo-disk, your drive will be half filled before any files are moved onto it. Therefore, I still choose to partition my hard drive, be it only for esthetic reasons.

If you do partition your drive, *both parts* must be initialized on the Amiga. Mr. Johnson was correct on this point.

Mr. Johnson pointed out that I had quoted the Amiga hard disk manual, leading to some confusion. The quote in question is, "click on the 'Install HD' icon, hold down the SHIFT key and double click on the Workbench icon." The term "Workbench icon" is extremely misleading.

I had renamed my Amiga partition to 'Workbench', so this step worked perfectly for me. My article should have specified 'your target, Amiga partition'—the location to receive the programs. Even so, the Install HD program makes this very apparent when executed, and should not lead a person into much confusion (e.g., it prompts with a statement that files are to be copied to <drive>:<drawer>, okay to continue?).

Mr. Johnson also came across an obvious mixup in my article. Under the four steps needed to rebuild the PC environment, Step 3, Install the Bridgeboard software on the drive, should be Step 1. If this step is not executed first, the MAKEAB command is unavailable and the SYS:PC/SYSTEM drawer does not yet exist on your hard drive.

To summarize, the following areas were misleading:

1. Partitioning is not necessary, though I do recommend it.

2. If you have partitioned, both halves must be initialized.

3. Run the 'Install HD' program against your hard drive, Amiga partition.

4. Run the 'BridgeInstall' program immediately after the 'Install HD' program to copy all Amiga PC programs to the Amiga hard drive.

I apologize for the shortcomings contained in my article. I can certainly empathize with Mr. Johnson's frustration. However, I still feel my article serves the purpose for which it was written. Namely, it provides a road map for Amiga literates to set up their hard drive for access from their Bridgeboard. Unfortunately, there are unnecessary detours on this road, but I do hope the article can get a person through the steps more easily than what I experienced when I set out on this road alone.
—Eugene Rawls

All letters are subject to editing. Questions or comments should be sent to:

Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869
Attn: Feedback

Readers whose letters are published will receive five public domain disks free of charge.

(New Products, from p. 10)

futuristic arcade action adventure that combines strategy, hi-tech weaponry, and seven levels of action as players become Earth's only hope against an invading alien force. At the controls of Earth's most sophisticated fighting machine, players battle forces on seven different worlds and engage in a hair-raising final confrontation with the supreme overlord of the evil Arcturian Empire.

Stellar 7 was one of the first 3-D games for the home computer. Now Stellar 7 returns in a completely updated version, combining highly advanced technology with modern techniques of hand painting and digitizing graphics. The original stereo soundtrack includes 15 songs and sound effects fully implemented for the Amiga.

Stellar 7 comes on three diskettes and is compatible with any Amiga. *Suggested retail price: $34.95. Inquiry #211.*

TRIAL BY FIRE

Also from **Sierra On-Line** comes the second installment to the **Quest for Glory** series.

Trial by Fire delivers more puzzles, more fun, more characters, and more locations. It combines the best of two game genres, adventure gaming and fantasy role-playing.

Good and evil await those who dare to cross the arid Arabian wastes to rescue Arus al-Din, the honorable Emir, and restore him to his throne. While solving the many puzzles of an exotic new world, plots and subplots unfold in the twin cities of Rasier and Shapier, once blessed but now cursed. As a cunning magician, a fierce fighter or a wily thief, heroes decimate desert monsters, joust with jackalmen, and battle brigands. Through a series of carefully devised tests, adventurers may prove their worth and attain glory.

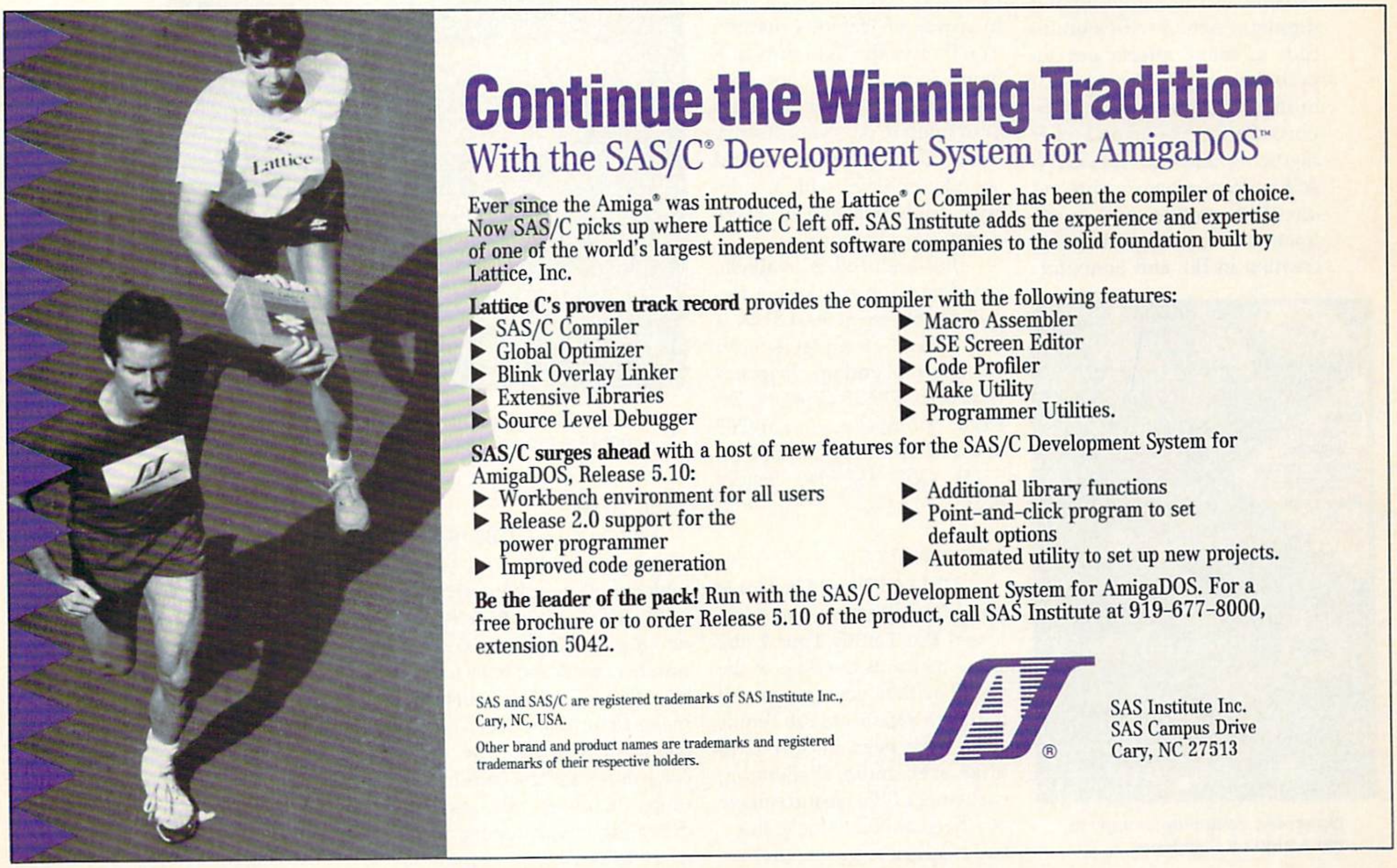
Available for the Amiga in 16-color EGA/VGA graphics, Quest for Glory II, Trial by Fire comes on eight 720K disks. Formerly known as Hero's Quest, the Quest for Glory series underwent a name change to avoid trademark confusion. *Suggested retail price: $59.95. Sierra On-Line, Inc., P.O. Box 485, Coarsegold, CA 93614, (209) 683-4468. Inquiry #212.*

CLICKFAX

New from **Black Belt Systems** comes a full spectrum fax system for the complete line of Amiga computers. **ClickFAX** is an external modem and support software. ClickFAX supports both sending and receiving fax messages and documents at 9600 baud with 1-D or 2-D compression. ClickFAX also provides standard telecom modem capabilities, at speeds of 300, 1200, and 2400 baud with MNP level 3, 4, and 5 support.

ClickFAX has three complete user interfaces. Take advantage of all of the system's features from the Workbench using the mouse, CLI, or Shell, or via ARexx from any application, script, or macro.

Three types of input files are available for your faxes. Standard text files, IFF graphics and pre-compressed fax files are your choices. View incoming fax messages from a high-speed bitmapped window, or send to the preferences printer



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- Point-and-click program to set default options
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Be the leader of the pack! Run with the SAS/C Development System for AmigaDOS. For a free brochure or to order Release 5.10 of the product, call SAS Institute at 919-677-8000, extension 5042.

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for output. Save documents as IFF graphics or as compressed FAX files for later transmission.

Send any single IFF, text, or FAX file to any other fax system in one transmission. ClickFAX is highly user-configurable. Custom screen and workbench operation are available, and selectable scaling for the SuperBitMap FAX view window scales incoming faxes live, and enables scrolling around a fax as it is being drawn. *Retail price: $449.95; available directly from Black Belt Systems only. Black Belt Systems, RR1, Box 4272, Glasgow, MT 59230, (800) TK-AMIGA. Inquiry #213.*

A-SOUND ELITE

From **Deltaware Products** comes a digital sound editor capable also of sampling and digitizing sound with a multitude of sound effects and superlative sound-editing capabilities. **A-Sound Elite** supports: Perfect Sound and other digitizing hardware; IFF, RAW, ASF and Sonix instruments and one-shot samples; and multitrack, multi-octave instrument creation in IFF and Sonix formats. There are 32 individual audio sample tracks; each has its own configuration in both mono and stereo. There is full implementation of stereo in all operations.

Big screen adventure brought to the Amiga by Capstone.

A-Sound Elite includes a full array of editing tools including cut, copy, and paste; zero, delete, and auto-edit.

Minimum requirements are at least 1MB of memory and a disk drive. *No price has been set as of yet. Deltaware Products, 3148 Kingston Rd., Ste. 202, Box 395, Toronto, Ontario, Canada, M1M 1P4, (416) 431-2047. Inquiry #214.*

BILL AND TED...

Capstone, the entertainment label of **IntraCorp., Inc.** has released a new video game for the Amiga. **Bill and Ted's Excellent Adventure** is a fully-animated arcade action game recreating all the fun of the movie. Join Bill and Ted on a fun-filled romp through time in search of "famous dudes". You'll meet the likes of Napoleon, Socrates, Joan of Arc, Einstein, and many more on your quest to pass your history exam. Digitized pictures and sound combined with arcade-style animation and graphics add to the adventure.

Bill and Ted is available now for use on any Amiga. Requirements are at least 512K, 1 disk drive, a joystick, and KickStart 2.1 and up. *Suggested retail price: $39.95. Capstone, Division of IntraCorp, Inc., 14202 SW 136TH Street, Miami, FL 33186, (305) 252-9040. Inquiry #215.*

PRO TENNIS 2

UBI SOFT and **Electronic Arts Distribution** have released **Pro Tennis Tour 2**, the game that puts the titles of the world within your grasp. All the characteristics of Pro Tennis Tour have been improved to offer even more challenging excitement. Other features have also been added to make this a truly realistic tennis simulation. Choose to play on three different court surfaces; play singles, doubles, or even triples; and choose either tournament or training mode. The player's parameters can be set to your specifications—physical condition, swing, skill, and strength attribute directly to the player. During a match, the computer tabulates all the stats according to the shots you make against your opponent.

Players may also participate in all Grand Slam tournaments throughout the tennis season. Train and work on weak spots with a programmable ball machine. Also, plan your own tournament schedule. Pro Tennis Tour 2 is a completely programmable tennis simulation for all levels. *Suggested retail price: $49.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (800) 448-8822 Inquiry #216.*

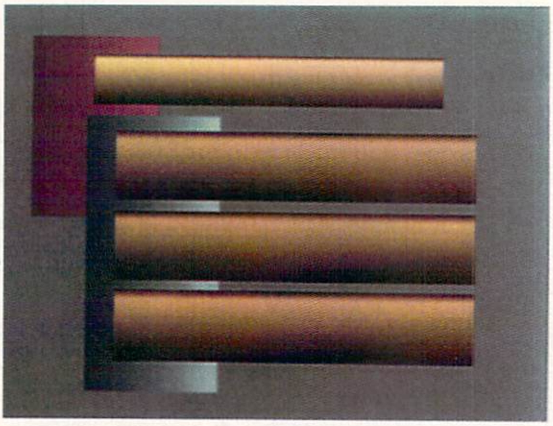
PICK 'N PILE

Also from **UBI SOFT** comes a challenging game which combines skill and talent with a lot of luck. In **Pick 'N Pile** you are faced with an endless number of colored balls falling from the sky, and it's your job to make them disappear. To accomplish this feat, you must catch and stack the balls in columns then make the columns disappear by stacking even more balls. Once a column is complete, it vanishes. To move on to the next level, you must clear the screen of all the balls. Check your reflexes for this one. *Suggested retail price: $39.95. Electronic Arts Distribution, 1820 Gateway Drive, San Mateo, CA 94404, (800) 448-8822. Inquiry #217.*

SCREEN-MAKER

The Digital Graphics Library introduces **Screen-Maker**, a method of creating professional quality graphic enviroments. Screen-Maker comes with ready-made backgrounds for charts, graphics, titles, and other video images. With the software running on the user's color video board, these backgrounds can easily be modified for use in generating TV screens or electronic slides.

Screen-Maker includes 100 deep-color high-resolution images stored on diskettes. Screen-Maker images include frames, panels, bars, scrolls, geometrics and natural images which the user can modify with text and pictures. Screen-Maker may be used on any Amiga with a video graphics board. *Suggested retail price: $495.00. The Digital Graphics Library, Inc., 1382 Third Ave., Ste. 333, Ney York, NY 10021, (212) 978-8508. Inquiry #220.*



Screen-Maker backgrounds are ready-made for all sorts of video applications.

AMIGA ARTISTS

Willow Mixed Media, Inc. is expanding its monthly series of cable TV programs featuring Amiga artists to include Amiga art-related products. The series has gathered works from Amiga artists throughout the United States and offers them in this video showcase. The response from the artists has led to the expansion of the program to include reviews and presentations of hardware and hardware-software innovations for the arts.

Cinnamon Toast Fonts come in six styles.

Willow Mixed Media is a non-profit organization which has been sponsoring innovative arts and documentary programming since 1970. **Amiga Artists on the Air** is seeking support from manufacturers of innovative art and video-related products for the Amiga. The program intends to highlight new-product introductions that assist the Amiga arts community.

Distribution of Amiga Artists on the Air is by video tape to cable access stations, universities, and public libraries. For more information please contact *Willow Mixed Media, Inc., P.O. Box 194, Lennox Ave., Glenford, NY 12433, (914) 657-2914. Inquiry #221.*

CINNAMON TOAST

Shereff Systems, Inc. has announced the release of their second set of Cinnamon Toast Fonts for the Video Toaster. **Cinnamon Toast Fonts Set 2** is a 4-disk package that includes six styles of chroma fonts available in two sizes. The fonts are rendered in 24-bit RGB color and converted to Toaster Font 16-bit digital video color to assure broadcast quality, style, color gradation, and legal NTSC chroma values. The Styles represented in Set 2 are CinGold, CinLime, CinGlory, CinStone, CinNews, and Cinnamon. *Suggested retail price: $99.95. Shereff Systems, Inc., 15075 SW Koll Pkwy., Ste. G, Beaverton, OR 97006, (503) 626-2022. Inquiry #219*

IMAGINE—A GUIDED TOUR

Centaur Software, Inc. has released a new instructional video tape intended for use with Imagine from Impulse. This 90-minute video tape is a thorough tutorial exploring all the incredible feature of Imagine, the professional 3-D rendering software for the Amiga.

Imagine—A Guided Tour includes segments on object loading and creation, surface attributes, lighting techniques, texture mapping, animation, 12- and 24-bit comparisons, and more. This video tutorial complements the program's manual and teaches viewers everything they need to know to master the program's possibilities. This tape allows you to get the most out of Imagine and helps you to unleash your imagination. *Suggested retail price: $39.95. Centaur Software, Inc., P.O. Box 4400, Redondo Beach, CA 90278. Inquiry #232*

VISIONMODELLER 3-D

ShaderSoft has released **VisionModeller 3D version 1.0**, a full featured 3-D modelling program for use with XSpecs 3D glasses from Haitex Resources. Together, they present a modelling environment which allows you to work in a three-dimensional space from any viewing angle. VisionModeller 3D can also be used without XSpecs in full perspective mode.

VisionModeller features numerous basic shapes including cubes, spheres, and fractal trees. Easily create and edit points, lines and faces. Tools allow you to extrude in any direction, spin around any axis, skin cross-sections, and have the ability to generate multiple files for animations utilizing dynamic motion with ground interaction and plastic deformation.

The program features read and write compatibility with Sculpt 3D/4D, Turbo Silver 3.0 and Imagine rendering programs with extensive configuration options.

VisionModeller 3D runs on any Amiga computer equipped a 68020/030 processor and a 68881/882 math coprocessor combination with at least 1.5 MB of memory. Compatible with AmigaDOS 1.2 thru 2.0. *Price: $150.00; available directly from the developer. A demo disk is available for $10.00, which is deductible from later purchase. ShaderSoft, 3631 Colby S.W., Wyoming, MI 49509, (616) 531-6083. Inquiry #234.*

DATAFLYER

Expansion Systems introduces the DataFlyer line of SCSI drives for the Amiga 500 and 200. The all new line of products offers the speed and conveniences of a hard drive. The all new autobooting 8-bit interfaces provide greatly increased speed. The DataFlyer from Expansion Systems also offers compatibility with any SCSI drive, an optional 4- or 8-megabyte plug-on memory board and easy formatting software. The non-DMA design eliminates DMA problems. It is also Syquest and AMAXII compatible. The DataFlyer also works with the Fast File System Workbench 1.3 and 2.0.

The DataFlyer 2000 interface comes as a hard card and plugs into any standard A2000. The drive attaches to the rear of the card or to optional rails. The optional DB25 connector kit passes through the SCSI buss. Suggested retail price for the DataFlyer 2000: $99.00.

The DataFlyer 500 comes as a complete system or as a kit with everything you need but the hard drive itself. The chassis comes with, or will accept your choice of any 3.5 inch SCSI drive. All hardware and cables are included for easy installation. Both the interface and the memory card can be removed and used in an Amiga 2000. *Suggested retail price for the DataFlyer 500 System Kit: $189.00. Expansion Systems, 44862 Osgood Road, Fremont, CA, (415) 656-2890. Inquiry #233.*

•AC•

GOLD DISK'S

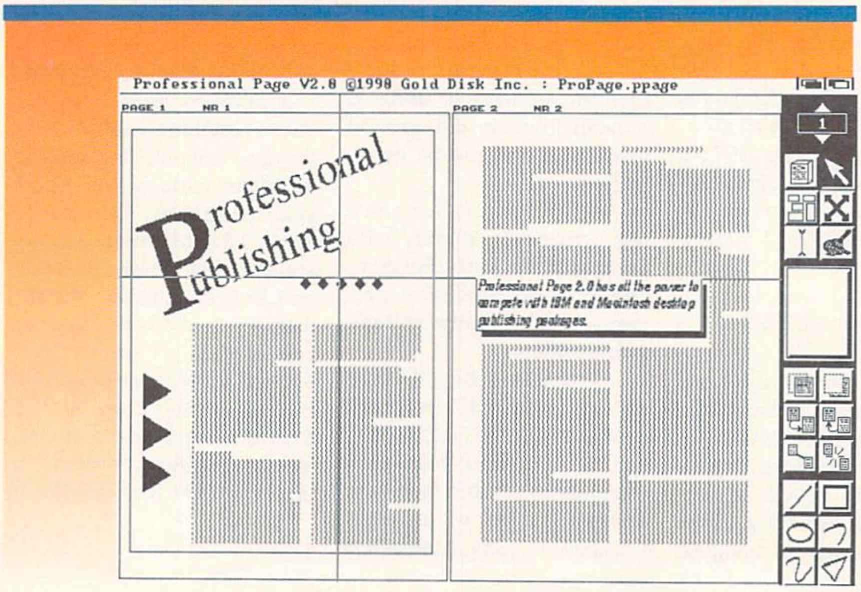
PROFESSIONAL PAGE 2.0

by Rick Broida

PROFESSIONAL PAGE 2.0 HAS THE FEEL of a new sports car: sleek new lines, a high-output engine, and an eye-popping sticker price. Yet, with all the horsepower, reliability, and extras that one would expect to find in the ultimate desktop publishing machine, Gold Disk has forgotten to put a tiger in the tank.

Perhaps that's a bit too harsh; after all, Professional Page does handle beautifully, and it dependably gets you where you want to go. It just takes a little longer than you expected.

These conclusions come after a solid month of test driving—always a prudent endeavor when analyzing a new hot rod such as to shake out all the rattles and get a real feel for the clutch.



Professional Page 2.0 has all the power to compete with IBM and Macintosh desktop publishing packages.

Any text or graphic box can be rotated to any angle in Professional Page 2.0.

MY WET FOOT

Professional Page 2.0 is a significant package in that it solidifies what has long been shaky Amiga ground. Desktop publishing on the Amiga used to be like pulling a sock onto a wet foot: needlessly aggravating, though usually worth it when you saw the end result.

Gold Disk has clarified what Amiga desktop publishing should be: powerful, comprehensive, and trouble-free, with lots of simplicity and style designed in. The new box is particularly slick; its contents are doubly so. Professional Page 2.0 consists of a 268-page wire-bound instruction manual, a quick-reference card, three program disks, and an instructional videotape. Everything looks attractive and professional—two qualities vital to the Amiga's success as a desktop publishing force.

THE MEMORY MONSTER

Before driving home a Professional Page 2.0 package of your own, be sure that your Amiga can offer it the proper road conditions. Professional Page's vast power is not without its price; the ideal Amiga setup should have lots of memory, a quick hard drive, an even quicker processor, and a flicker-free display.

Of course, this sort of idealism is costly and perhaps unrealistic, especially for those just getting started in desktop publishing. It is possible to create many a professional page with only minimal hardware, and a relatively minimal initial investment.

The system I use at home—an Amiga 500 with a hard drive, external disk drive, RGB monitor, and an inexpensive flicker-reducing screen—meets nicely the needs of the would-be publisher, and doesn't break anybody's bank. Everyone has a slightly different arrangement, but desktop publishers who wish to use Professional Page 2.0 should also be ready, willing and able to invest in *at least* the following two areas:

Memory—Nothing is more important than maximizing your Amiga's available RAM. The Professional Page documentation lists one megabyte as the program's required minimum, but just meeting it will only serve to stifle your productivity. The software itself swallows almost that much, leaving little room for squeezing in a document. If you don't have at least two megs of RAM, including the fatter Agnus chip, don't even bother. In fact, if you plan to run multi-page, graphics-intensive documents, I recommend three megs. Here, having "too much" memory is like being "too rich" or "too thin"!

A hard drive—You just won't enjoy Professional Page without a hard drive. The program can be run solely from floppies, but a heinous amount of disk swapping is involved. For those planning to take the hard drive plunge, make sure it has the capacity for RAM expansion, thereby killing two essentials with one stone. Expensive? Yes, but no one said desktop publishing is cheap.

HEAVENLY GUIDANCE

And no one said it is easy. If you've never had your hands on a desktop publishing program before, get ready for conceptual overload. The difficulty lies not in actually running the program but in understanding a few new ideas. Fear not, newcomers, for the Professional Page instruction booklet is *un livre extraordinaire.*

This is the manual by which all others should be judged. It is clear, concise, comprehensive, and written in a language that seems to elude so many authors of software manuals—English!

For those who enjoy learning with audio-visual aids, Gold Disk has generously included an instructional videotape. This 45-minute introduction to desktop publishing and Professional Page's features is itself a professional, useful tutorial for the beginner. I must note, however, that both the videotape and the manual occasionally display requesters that differ slightly from those actually in the program.

IN WITH THE NEW

Type A computer users (you know who you are) will no doubt skip the manual and the videotape and leap right in, especially if they are experienced Professional Page 1.3 users. Whether you are impatient or inexperienced—or both—hard disk installation is a snap. Instructions are included both on the program disks and in the manual. Be warned: If you have version 1.3 already installed on your hard drive, remove all traces of it except for your own document files before installing 2.0. Failure to do so will cause no end of problems; the two just aren't meant to co-exist.

This is the manual by which all others should be judged. It is clear, concise, comprehensive, and written in a language that seems to elude so many authors of software manuals—English!

WRITING, ROTATING, AND WRAPPING

In layperson's terms, Professional Page allows you to arrange text and graphics on a page, and then print the result. In the past, this was done by first creating text and graphics in an external program (e.g., WordPerfect, DeluxePaint III) and then importing the data into Professional Page.

Version 2.0 has all but eliminated the need for a separate word processing package through the addition of its own Article Editor. Tailored to work both within Professional Page and externally, the Editor features a number of useful tools—including a powerful 90,000-word spell checker. Outside Professional Page, the Article Editor serves as a very efficient word processor, able to import and export WordPerfect files, find and replace words and phrases, and analyze documents for word count and grade-level reading comprehension.

The Article Editor truly shines from within, capable of making sizeable editing changes to text already imported into Professional Page. In this capacity, selected text is "lifted" from the document and transferred into the Editor, where corrections and additions are then made. The main advantage to moving text into the Article Editor is greatly increased speed and productivity, as any editing of large blocks of text done within Professional Page proper is a slow and tedious process. Once changes are completed in the Article Editor, text is returned to the Professional Page document and formatted accordingly. While I will continue to compose my text in my favorite word processor, I do appreciate the addition of the Article Editor for on-the-fly editing once my text is in Professional Page.

Another major addition to Professional Page 2.0 is a superbly integrated capability to rotate text and graphics. This feature works quickly and flawlessly, allowing for any text or graphic box to be rotated to any angle. This may be done by typing in the degree of rotation or by simply clicking one of the box handles while holding down the Control key and moving the mouse. Text may even be edited normally after the box has been rotated. Hats off to the Gold Disk programmers for not only adding this long-desired feature, but for making it as thoroughly excellent as it is.

Speaking of much-demanded features that have been well worth the wait, longtime users of Professional Page should be overjoyed by the addition of the Standoff option. Employed as part of a box that has been made impermeable (that is, text wraps around it; this type of box is often used for sidebars or graphics), Standoff creates a buffer around the box, keeping wrapped text from touching it. I find

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Circle 174 on Reader Service card.

this feature to be as valuable as box rotation, since sidebars and lift quotes are my life in desktop publishing!

Also of value is a new style-tagging feature. The creation and alteration of headlines, sub-heads, bulleted items, and regular body text are dramatically simplified by employing style tags. In essence, the style tag conforms newly typed or selected text to one or many preselected characteristics. For example, within this article are various subheadings that all possess the same attributes. A style tag allows you to define those attributes—such as font size, style, and color—and apply them to any section of text at will. This saves the tedium of having to affect those changes every time you decide to add a new subhead (or headline, or whatever).

The last major add-on to Professional Page is an extension of its already powerful color capabilities. The ability to perform desktop color separations has always been one of Professional Page's *tours de force*, and Version 2.0 has gone a step further by adding a Pantone color matching system. These colors, developed to standardize color printing at professional print shops, may be selected easily from within the program, with the end result a precise color PostScript output. Professional Page also maintains a database of over 65,000 colors, 1,000 of which may be displayed on the screen by using new color dithering techniques. For the high-end user, Professional Page has enough color mettle to handle anything.

A POTPOURRI OF IMPROVEMENTS

A number of other minor changes and improvements make Professional Page 2.0 even more of a pleasure to work with. It would be impossible to list them all here, but notables include:

The annoying screen flashing after a document save is gone. The cancellation of a print operation in process happens almost instantaneously. The screen tools and requester box buttons have been redesigned with a sharp, three-dimensional look. The option to alter text color is now right where it belongs—under the Type menu. The IBM format of WordPerfect has been added to the list of available word processor imports. 24-bit color files may be imported directly. Page numbers may be inserted and updated automatically. Thumbnail and facing pages views are now available to help check layout and jump quickly between pages.

NOT QUITE CONSUMMATE

What fun would it be if Professional Page was perfect? As with any monster-size application, Professional Page has its share of little problems.

First, when creating or extending a box larger than the confines of the screen—which causes the work area to "move" with you as you draw—the other boxes and the ruler are not "refreshed" (redrawn) as you move, making it impossible to align box edges without stopping to let the screen refresh, and then starting again. This is particularly strange because previous versions of the program did not exhibit this problem, but it should be easily correctable. Still, this is one negative Gold Disk should not have let out of the workshop.

Next, as in the past, a page printed using the HP_LaserJet printer driver is not centered, but rather down and to the right of center, and therefore minus its lower and right edges. While I absolutely adore my Hewlett Packard LaserJet IIP with 2.5 megs of RAM, I cringe when Professional Page gets hold of it. To temporarily solve this problem, I must group every box on a page and then move each to the very edges of the upper left corner. Even then, the printed result is still too low on the page. Because the combination of Professional Page's Compugraphic fonts and a non-PostScript laser printer is becoming increasingly popular (it's a cost- and quality-effective option), this is a problem that needs to be addressed immediately. In Professional Page's current state, printing with the HP_Laserjet driver is not only aggravating, it's almost useless.

Finally, Professional Page's most difficult problem is its lack of speed. Screen refreshes are often painfully slow, and they occur at the most inopportune times. For instance, simply switching from the Text tool to the Null pointer causes a screen refresh, and if you've got a few columns of 10-point type, it seems to take forever. Disabling the color display by enabling the black-and-white option speeds things up considerably, but I still find Professional Page's torpid pace disagreeable.

Granted, a package as powerful as Professional Page is better suited to a more powerful Amiga. On a 2500 or 3000 it picks up nicely and runs at a dandy dispatch. And granted, computer users usually aren't the most patient people, so maybe Professional Page's lack of zip is all relative. Nevertheless, while my Amiga 500 setup has all the memory, storage space, and printing power you would think are necessary to run this desktop publishing machine, Professional Page 2.0 is annoyingly sluggish and sure to discourage other impatient users.

IT NEVER HURTS TO ASK

Perhaps Gold Disk could someday add these features to make everybody—or maybe just this reviewer—happy: the ability to extend a line without redrawing it; the ability to wrap text around a graphic proper, not just the box that contains it; more text styles, like shadow, reverse, and smallcaps; and finally, the ability to bend text around a curve instead of just rotating it. These are wishes, not complaints, because Professional Page already offers quite a bit.

A GOOD RIDE

The truth is, Professional Page offers a ton. The list of features is endless, and despite the bugs, significant though they are, Professional Page has added to its well-earned reputation as one of the premier Amiga desktop publishing package. High-end users with speedy Amigas and PostScript printers should have virtually no complaints, and no one can question Professional Page's awesome power. A couple of quick fixes—do I hear version 2.1 revving up in the distance?—and Professional Page should be positioned to maintain its preeminent status in the face of stiffening competition in the Amiga DTP market. •AC•

Professional Page 2.0
Price: $395.00
Inquiry #222
Gold Disk, Inc.
P.O. Box 789, Streetsville
Mississauga, Ontario,
Canada L5M 2C2
(416) 602-4000

Please write to Rick Broida c/o Amazing Computing, P.O. Box 869, Fall River, MA 02722-0869.

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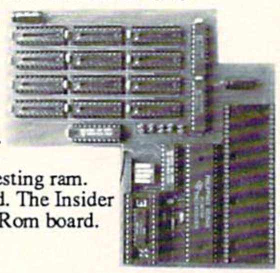

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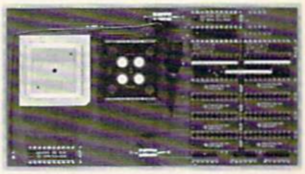

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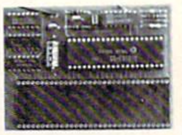

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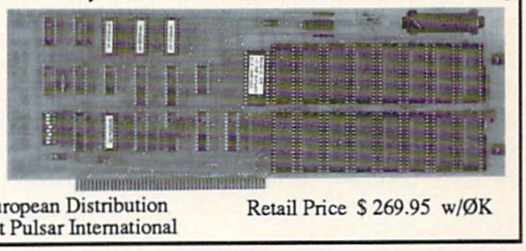

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Circle 194 on Reader Service card.

HAM-E

review by David Johnson

How would you like to have photo-realistic, 16.8-million-color images on your Amiga for the cost of a good ray tracer, or even less? After a long wait, we beleaguered Amiga owners can finally have "true color", often at a much lower cost than that offered by other platforms, which have had 24-bit frame buffers for quite a while longer. That's because there has been a revolution of sorts in the past few months: where there was once only HAM, now there are a half dozen display cards for the Amiga that offer lots of colors at varying resolutions, prices, and levels of hassle.

Because Amiga owners now have so many options, it is unlikely that any one display system will become the standard by default. There are true frame buffers (Impulse's Firecracker 24), video effects boards (NewTek's Video Toaster and Progressive Peripherals' Video Blender), inexpensive composite-only devices (Digital Creation's DCTV), and true RGB units like Black Belt System's HAM-E. While it is true that no single unit is likely to become a household standard for all people and all applications, HAM-E is poised to capture the major share of the true color market with its ingenious design, transparent operation, low price, and nearly seamless integration into the Amiga operating system.

What is HAM-E?

There are really two classes of display hardware on the market. Frame buffers are devices which use their own memory to store and display one or, at the most, two frames of 16.8-million-color images. The other type of hardware, which we might call "display adapters", uses the Amiga's own RAM to hold, manipulate, and display images. HAM-E is such a device. This design approach has many advantages over that of traditional frame buffers. First, because the device has no on-board memory, it is inherently less expensive. By using the Amiga's memory, you may pack as many images into memory as you have RAM to spare. Significantly, this allows you to actually perform double-buffered animation out of memory, instead of resorting to expensive single-frame-accurate VCRs and transport controllers.

Now, we've been discussing HAM-E in the generic category of 24-bit display hardware. However, Black Belt's creation is not a true 24-bit device; it is more accurately an 18-bit device. It brings the Amiga two new modes: 256 pixel-accurate colors ("register mode" in HAM-E lingo) in all resolutions and 262,144 HAM-like colors ("HAM-E" mode) in all resolutions. The 256-color mode is a true 8-bits-per-pixel display, and in greyscale is sufficient to define every shade discernible to the human eye. In a sense, it is true color in black and white. In color mode, it is best compared to IBM's VGA display card. It is important to keep in mind that, unlike other display adapters, HAM-E is a true RGB unit. It may be genlocked to composite on demand, but has higher resolution and color accuracy than a composite-only device.

The 262,144-color mode is also based on 8 bitplanes, though it is the equivalent of 18 bits per pixel (just like HAM's pseudo 12 bitplanes). It provides a super HAM mode with over 200 independent registers (just as HAM has 16 base colors) for virtually no visible fringing. Even better, the 262,144 colors can be automatically dithered on-screen for the impression of a full 24-bit display. Let there be no doubt that HAM-E images can be visually indistinguishable from 24-bit graphics. *[This is due to the fact that the human eye can only distinguish up to a certain level of color definition.—Ed.]*

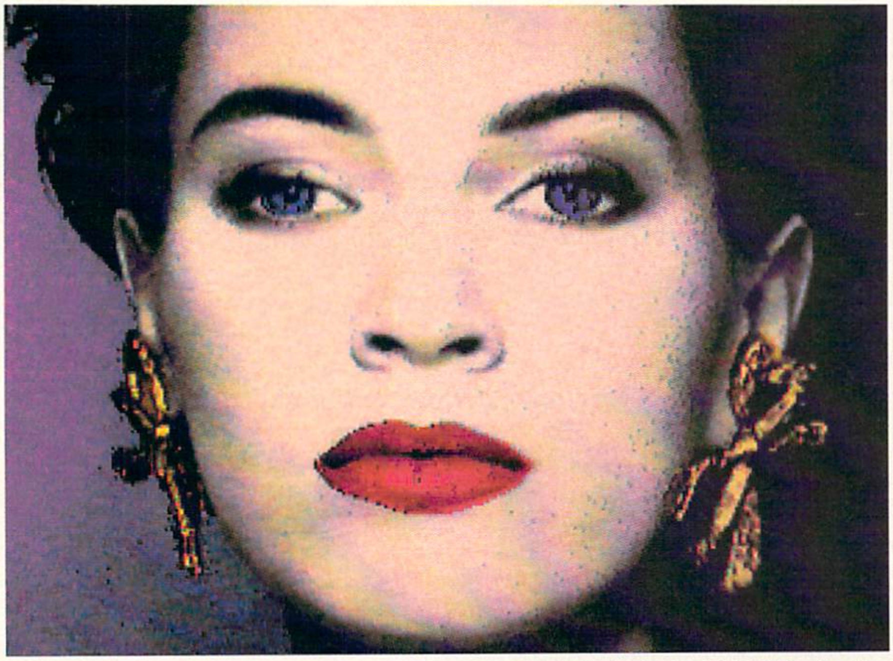


Figure One: HAM image from NewTek's DigiPaint prior to "HAM-E-ization".

To get some idea of the difference in image quality between HAM and HAM-E, refer to Figures One and Two. Figure One shows the familiar "Lady" image from NewTek's Digi-Paint. Notice the obvious color contours and artifacts in the HAM image. Figure Two was produced by converting the same image to 24-bit IFF and loading it into HAM-E's image processing (IP) software. *[Figure One was converted directly from an IFF file, while in the case of Figure Two a photograph of the screen image was taken, and that photo was then color-separated.—Ed.]* The greyscale skin was decontoured to introduce more levels of grey and then colorized using the same relative color levels (RGB numerical level times 16) as in the HAM image. For a smoother effect, IP was also used to smear the background before colorizing.

Why Be Hassled?

One question you may ask is why be hassled with a pseudo 24-bit system when, for a few hundred dollars more, you can own a true 24-bit frame buffer? Well, there are real advantages to Black Belt's super HAM concoction. One of the most important is file size. A typical 320 x 400 pixel, 24-bit IFF runs about 300 kilobytes on average. On a 3 MB Amiga, that allows for less than 8 or 9 frames in memory at once. That's not much of an animation. If the same 24-bit files were converted to HAM-E, they would occupy about 100 kilobytes each. Low-resolution HAM-E images, while still simulating 24 bits of color, are as small as 50 kilobytes. Because of the way HAM-E works, you can expect to see a frame rate of around 20 frames per second, on average, when animating. Depending on the complexity of your animation, it is possible to achieve much higher—or lower—frame rates.

Register mode (256-color or greyscale) animations tend to run a bit faster than HAM-E mode images because HAM-E is limited by some of the same palette/pixel restrictions as HAM. You can begin, however, to see the potential for true color animations running right out of your machine's memory. Finally, HAM-E is, to my knowledge, the most inexpensive display adapter on the market, at about 55,900 colors per dollar.

Making HAM-E Work

The HAM-E device is an 8" x 8" x 1.5" metal box which intercepts the Amiga's video signal at the RGB port. It in turn plugs into your monitor and has its own independent power supply. I tested the HAM-E unit with both a 1084 monitor and the Commodore 1950 multisync, and it works well with both. In addition, HAM-E functions on all model Amigas, from the 500 through 3000.

The configuration process is not as simple as plugging it in and turning it on; still, it shouldn't pose any major problems. The unit must be adjusted for the particular Amiga to which it is attached via four variable pots inside the box. Though the manual does not specify, I'd recommend that you plug it in and let it warm

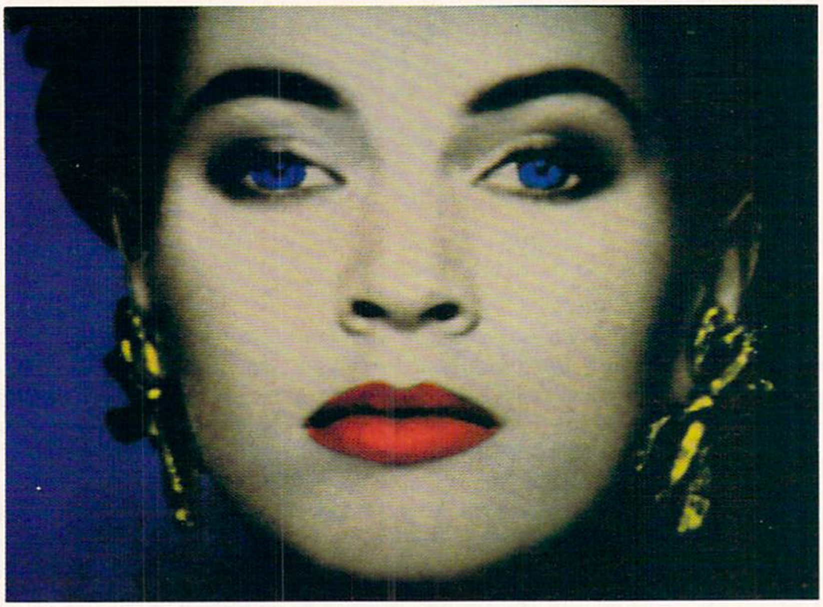


Figure Two: DigiPaint image converted to 24-bit IFF, then loaded into and altered with HAM-E's image-processing software.

up for 30-60 minutes before adjusting things, or you'll be repeating the process shortly after screwing the box back together. Essentially, the task is little more than turning a pot until the supplied HAM-E graphics stabilize on your monitor. After you see the 18-bit prism (HAM-E's unofficial mascot) clearly, it's on to the adjustment, which does require some finesse.

You must load a HAM-E IFF greyscale graphic and a normal IFF greyscale image and adjust three color pots until the two images match perfectly. If you cannot get them to match exactly, it is most likely a problem with your monitor. As the manual advises, don't adjust the HAM-E image for a better greyscale; just try to make them match, and then work on your monitor settings. I've found the best technique for this adjustment to be turning all three color pots down until the HAM-E image is pure black, and then turning each up a little at a time until you have good color balance. After that, you're set! The manual states that HAM-E was designed to be left on all the time. My experience indicates that you really should leave it on permanently, or you'll forever be fine-tuning the box every time it warms up.

There are two different HAM-E models available. The high-resolution unit has a toggle switch to activate its anti-aliasing engine. When left off, it functions exactly like the original HAM-E unit at resolutions up to 384 x 480. Enabling the anti-aliasing engine doubles the horizontal resolution of the displayed image and performs sophisticated anti-aliasing operations to improve image quality instantly. Because all of this occurs inside the HAM-E unit, the improved image quality comes at no additional cost in Amiga RAM. For the most part, this enhancement is fairly subtle and visible only at close range. Aside from the switch, there is no difference in the operation of the two models, and they have identical system requirements.

The Perfect Beast

HAM-E integrates almost flawlessly into your current Amiga system. HAM-E recognizes its own IFF images and displays them properly, while passing other IFF images through the system unchanged. Just about any program that can display IFF images can show HAM-E images without modification. That includes DeluxePaint, AmigaVision, CanDo, SuperView and nearly every other one you can think of. The transparency of this environment must be seen to be appreciated. Slideshows can feature Amiga IFF and HAM-E IFF images intermixed, and animation software can manipulate HAM-E images with ease. I've used Elan Performer's AnimSplicer utility to build HAM-E animations in the ANIM5 format and played them from a variety of sources.

TABLE ONE: CONVERT INPUT FORMATS

Amiga IFF (including HAM and Extra_Half_Brite)
HAM-E register mode and HAM-E mode, HAM-E brushes
DigiPaint brushes
PhotonPaint brushes
GIF
SHam
Dynamic Hi-Res (DigiView Gold 4.0)
RGBN (HAM Turbo Silver)
RGB8 (24-bit Turbo Silver)
ScanLab 18-bit
The Art Department (ARZ0, ARZ1, AHAM and CLUT)
Targa
QRT tracer
DKB tracer
Raw Files (such as Sculpt)

TABLE TWO: RENDER ALGORITHM OPTIONS

Render Flags **(function on some or all render modes):**	
Spread	**Adjusts colors to use full contrast range.**
NTSC Limit	**Adjusts image contrast to prevent video smearing.**
Contour	**Reduces the possible colors in image.**
Decontour	**Adds colors to images with fewer than 24 bits.**
Sharpen	**Image focusing.**
Smear	**Defocusing.**
RIP/RIS	**Removes artifacts such as HAM fringing.**
EDD	**Pseudo-random dither.**
Render Modes:	
1. HAM-E	**262,144 colors on screen.**
2. Register Modes ***(256 colors):***	
R-Block	**Very fast but unflattering render.**
R-Dither	**Uses the same palette in each image (appropriate for animations).**
R-Smooth	**Analyzes image for most common colors and assigns those to the 256 color registers.**
R-Spectral	**Analyzes image for optimum color for each pixel in image.**
R-Hybrid	**Compromise between Smooth and Spectral algorithms.**
Greyscale	**256 greyscale image rendered with equal weight given to the red, green and blue components.**
Lumascale	**256 greyscale image rendered with NTSC standard weights (red - 39%, green - 59%, blue - 11%).**

One of the most frustrating considerations when talking about Amiga 24-bit hardware is the utter lack of standardization. While adding a frame buffer to your Macintosh is a piece of cake, no two display devices on the Amiga work on the same principles, communicate with the Amiga in the same way, or even read the same graphic format exclusively. There is a 24-bit IFF format, but not all software and hardware supports it. HAM-E does support it, though, and that makes it easy to start using HAM-E.

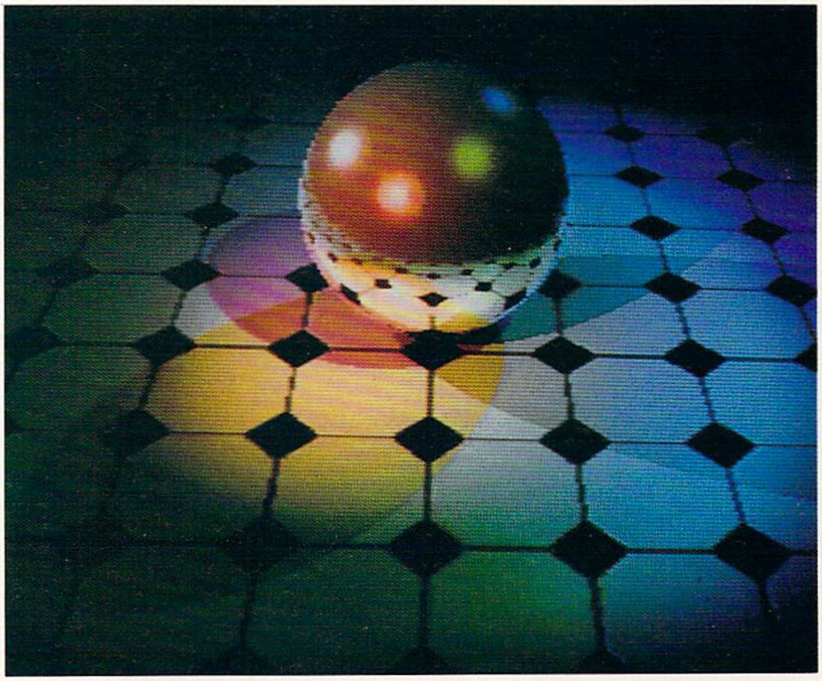
Using HAM-E

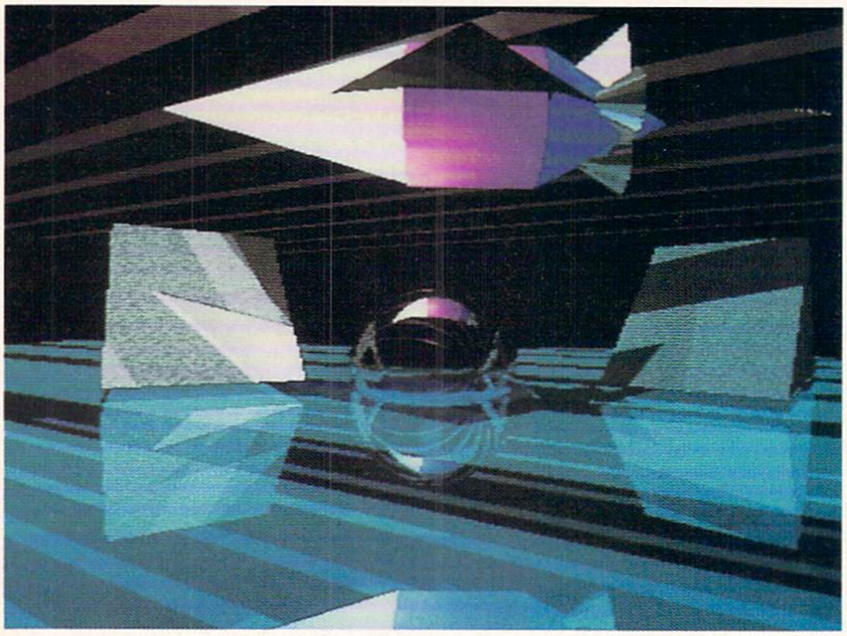
HAM-E comes with an arsenal of Black Belt public domain software to make the transition to 16.8 million colors painless. The first program you will likely use is called Convert. Its job is to take graphics of just about any variety (see Table One for a list of supported formats) and convert them to the 24-bit IFF standard. Presently, Convert is a CLI-only program. Black Belt is reportedly rewriting Convert to support a graphic interface, but until then I've written a graphic front-end for it which can be found on Black Belt's bulletin board. It requires CanDo or the CanDo browser (available on PeopleLink, among other places) and simplifies the task of converting multiple files to 24-bit IFFs.

Once a file is saved in 24 bits, there are a multitude of things you can do with it. Using the supplied Render program, you can convert this 24-bit image into a 256-color or 256-greyscale image, or render it in the full HAM-E 262,144-color mode. You can also load it directly into the paint and processing software, and we'll get to that shortly.

Render includes numerous options for optimizing your image. When you first start out with HAM-E, you will probably have lots of Amiga graphics (composed of 4096 colors or less) that you want to display in HAM-E. The Render software offers a multitude of algorithms to introduce more colors into an image, thereby enhancing a previously low-color graphic. Table Two lists those options and their effects. While it is possible to improve Amiga graphics drastically with the Render program, two points should be made. First, it does take some practice to achieve good results. Though it's hard to end up with a HAM-E image that is worse than the HAM or 32-color graphic you started with (exception: the R-Block

HAM-E mode in action.





render mode, which makes your 256-color image look like it was quilted from thick wool), to really get the most out of Render, be prepared to experiment with all of its options frequently. Secondly, the real benefit of owning HAM-E is not modifying your old Amiga graphics with Render, but rather displaying and manipulating true 24-bit images that began their life that way.

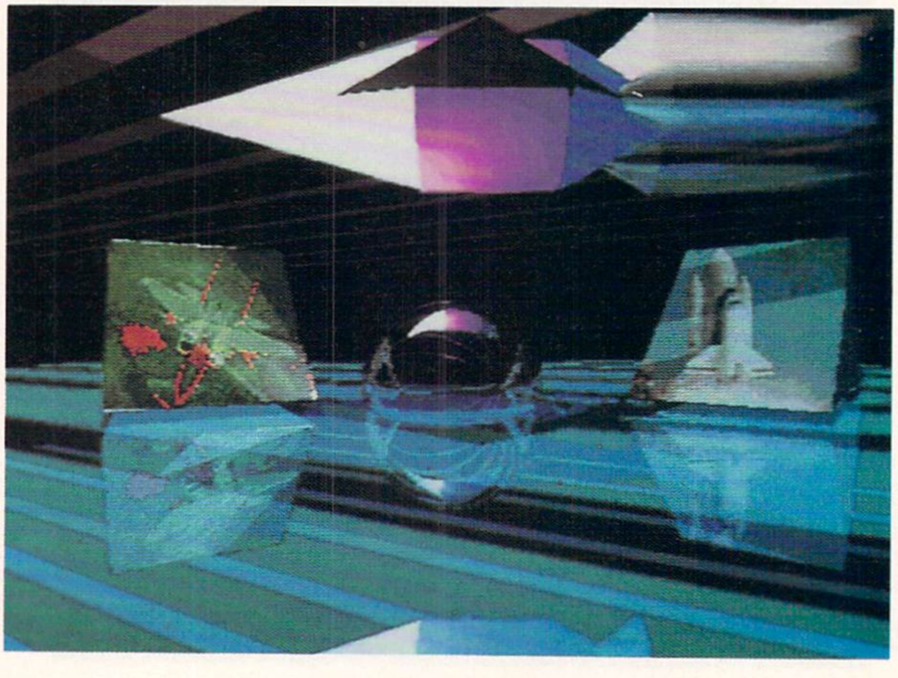
Any Color You Like

Two other programs are supplied with HAM-E at the present time: a register mode paint program and a true 24-bit image processing system. Black Belt will reportedly have released a companion 24-bit paint program before you read this review, but it was not available for inspection at press time. The reg mode paint program allows you to paint and, with ARexx, animate in 256 colors or greys.

I do not consider myself to be an intuitive computer artist; rather, creating graphics is simply one of the several ways I use my machine. With that in mind, let me remark that I am not fond of the paint program, though there are many Black Belt customers—better artists, most likely—who seem to like it. I find its interface to be unattractive and difficult to use. Some of its more powerful features—like colorize, brighten, darken, wash, complement, focus and smear—must be controlled by configuring regions of the color palette and assigning those regions to these effects.

The paint program includes many features you would expect from a mature graphics system. It has basic drawing tools, a magnifying glass, an innovative pantogram tool, stencil and grid features, spray paint, and brush tools. There are a variety of fill options including warping effects. Text support includes ColorFonts. The program fully supports superbitmaps and a spare page, with independent palettes. The brush operations are particularly powerful. There are options to change a custom brush's size; stretch, rotate or flip it; remap its palette to a new graphic, and render it in 3-D perspective, similar to DeluxePaint's feature.

The paint program's palette control is a separate window which displays all



Above left: Figure Three, originally composed scene after it rolled off the ray tracer.
Left: Figure Four, same scene post-HAM-E's IP. Both the motion blur on the aircraft and the anti-aliased sky objects were added by IP in minutes.

256 colors on-screen. It has sophisticated tools for editing the palette, creating ranges for a variety of special effects, and creating color cycling, and "glow" ranges (a special HAM-E color cycling mode). HAM-E supports a whopping ten color ranges, and each range can include up to 256 color registers.

HAM-E's paint program saves images as register mode HAM-E graphics, 24-bit IFFs or GIF files. It is an undeniably powerful program, but it seems to me that its features are fighting with the interface for attention. Any reservations you may have about the paint program, however, will be swept away with your first glance at Image Professional, HAM-E's 24-bit image processing program. In my opinion, IP might just be the best thing that has ever happened to Amiga graphics processing.

HAM-E loads and saves 24-bit IFF files. Images can be displayed in register mode (color or greyscale), HAM-E mode or, for best effects, what Black Belt calls HAM-E 24-bit mode, which is 262,144 colors dithered for the appearance of 16.8 million colors on-screen. IP can load and store as many images as you have memory for in independent buffers. Those graphics can be over 32000 pixels square which, at 24 bits per pixel, requires 4 gigabytes to display. As you can see, IP has few restrictions on image size.

The menu is a Workbench 2.0-style strip of gadgets marked Exit, Load, Save, Image Composition, Image Processing, Display Control, Buffer Control, Info, and Defaults. With a single image loaded into memory, the image processing menu is activated. From here, you may choose from a list of many plain-English options. Because IP offers 16.8 million colors and 16.8 million levels of transparency, it is easy to achieve effects just about impossible with traditional HAM software. As an example, Figures Three and Four respectively depict a scene after it rolled off the ray tracer, and again after it had gone through IP. Note the motion blur on the aircraft and the anti-aliased sky objects, both of which were added by IP in minutes.

As for the movie screens, we need to move on to IP's Image Composition menu. Once a second image is loaded into IP and assigned as a secondary buffer, the composition menu is activated. It offers merge and rubthru effects. The shuttle is a detail from a larger Sham image, generated using the Stretch from Clip option. This feature anti-aliases a brush as it is stretched to fill the screen. It was then merged onto the movie screen at a 50% blend in order to preserve the detail on the screen behind the shuttle. The shuttle clip was flipped vertically and merged over the screen's reflection at a 30% blend. The F15 was solarized and merged much the same way.

Picture mapping in ray tracers often takes a prohibitive amount of time. Using this process, a very good effect can be achieved after the fact in only a few minutes with IP. The composition menu provides several other tools, including surface warping and shading, in which the texture of the primary image is altered according to the color contours of the image behind it.

IP has other powerful features. I would be remiss not to mention the blend requester, which allows for very delicate blending variances over the surface of the image with separate sliders for top, bottom, and sides. Blend levels can be saved for later use as well. The clip tool replaces a more traditional magnifying glass in the respect that clipped images may be manipulated and then restored to their exact position in the original graphic with changes intact. Finally, the Info requester can tell you about memory usage per image or in total, and can count the colors used in the current graphic, memory permitting.

Other Considerations

There are a few aspects of HAM-E which will hopefully be addressed in the future. HAM-E is a 15 kHz device, and will not function with a flicker fixer or the

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Amiga 3000's display enhancer. While Black Belt has indicated that a de-interlace-compatible HAM-E upgrade has not been ruled out, they also made it clear that one wouldn't be seen in the near future. In the meantime, I'll rely on my trusty old source for bizarre cable requirements, Redmond Cable (206 882-2009), to provide me with a video switch box for alternately viewing de-interlaced video and HAM-E images on the same monitor. Your other options include enjoying the flicker all the time or using two monitors.

Additionally, HAM-E has a problem "talking" to most genlocks at the moment. This is a serious limitation, but Black Belt is aware of the bug and has already formulated a hardware fix for it. *[According to a Black Belt spokesperson, this problem has indeed been solved.—Ed.]*

I've found Black Belt Systems to be a very responsive company, and their support to be among the best offered in the Amiga community today. All of the software released with HAM-E is upgraded regularly and at no charge via the Black Belt bulletin board, or through the mail if you do not have access to a modem. The IP software, for example, underwent three significant upgrades in the first several weeks of its virtually bug-free release this winter. In addition, Black Belt's source code is freely available.

You will get the most out of an investment in HAM-E by using software that generates 24-bit images, such as Digi-View and ray trace software which saves in Targa or 24-bit IFF format. HAM-E can address Digi-View Gold 4.0's hold buffer directly, allowing you to digitize and then render in 21 bits without any intermediate steps. But beware: at the moment, this only holds true for version 4.0. I've found that even the minor maintenance upgrade I received from NewTek a year ago doesn't work, and we can expect that the A3000 fix won't function either, pending some action from Black Belt. In the meantime, use Digi-View's Save RGB option to capture the image in 21 bits, and use the Convert utility on it.

In my opinion, HAM-E is the definitive choice in display hardware for the Amiga both today and well into tomorrow. Check out HAM-E. You may very well find that the future is now. •AC•

Update!

Black Belt's HAM-E software has matured significantly since this article was written. With version 3.6, Image Professional now has over two dozen new effects and features including full ARexx support. The Render program, used for converting 24-bit files to HAM-E-viewable formats, has been completely integrated into IP. Instead of having to experiment with many render options and flags, now one only needs to choose a mode (256 grey, 256 color, 18-bit or 24-bit) and IP takes care of the rest. Using ARexx, queues of 24-bit files destined for animation can be rendered in a single batch with a common base palette for fastest animation speed.

In other software news, Render has been replaced with the Render module now in IP. Convert, used for transforming images into IFF 24 format, has been revamped with an IP-like graphic interface. In the public domain you can find a menu-driven batch renderer for IP's render mode; there is also third-party support for HAM-E in the way of an 8-bit, 256-color paint program, HAM-E Workshop, from Holosoft.—DJ

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Medley

by Phil Saunders

One of the problems that beginning MIDI musicians face is connecting all the cables in their MIDI setup properly. So this time I will discuss setting up and optimizing your equipment, with an emphasis on low budget systems. Bear in mind that MIDI data and audio output are completely different entities! MIDI cables carry information about which notes should be played by a synthesizer; audio cables carry the actual sounds produced by the synthesizer. We'll consider MIDI cabling first.

The INs and OUTs of setting up your Amiga MIDI interface

Most Amiga MIDI interfaces have MIDI IN and MIDI OUT jacks. More elaborate (and expensive) models add additional MIDI OUTs and possibly also a MIDI THRU port. A MIDI IN receives MIDI data; a MIDI OUT transmits MIDI data. A MIDI THRU takes the data received at the MIDI IN and passes it along to the next instrument (note that a THRU port *always* passes on all the MIDI data it receives, whether the instrument responds to that data or not). Some publications claim that connecting instruments by "daisy-chaining" them with MIDI THRUs can cause timing problems, but the actual time delay is only three microseconds, or three millionths of a second, far too brief to cause an audible delay.

If you have only one MIDI synthesizer, the connections are simple. Connect the Amiga's MIDI OUT to the synth's MIDI IN, and the synth's MIDI OUT to the Amiga's MIDI IN. Figure 1 shows the flow of MIDI data. Notes output by the synthesizer can be recorded by the Amiga, using appropriate software, and notes output by the Amiga can be played by the synthesizer. This setup will work with any Amiga MIDI software.

Once we add an additional MIDI sound module or drum machine, the picture gets more complicated. You might route the MIDI cables as shown in Figure 2. This layout has two advantages and one big problem. You can play the module live from your synthesizer keyboard without using the Amiga at all—it doesn't even have to be turned on! In addition, notes played on the synthesizer will pass through the module's THRU port and then go to the Amiga's IN, where they can be recorded by a sequencer program. Now the big problem is that the Amiga's output goes only to the synthesizer and is not passed on to the module. If you think about how a sequencer works, you'll realize what a big drawback this is. In this setup, the only time the module produces any sound is when notes are played live on the synthesizer keyboard. When the sequencer replays MIDI data it has recorded, the data goes only to the synthesizer and is not passed to the module.

Figure 3 shows the connections needed to properly hook a sound module to the Amiga. Figure 4 traces the path taken by notes played on the synthesizer's keyboard. These notes go to the Amiga's MIDI IN, where they can be recorded by a sequencer. Almost all sequencers offer a merge option, which receives MIDI data from the Amiga's MIDI IN, merges it with the sequencer's MIDI output, and transmits the merged data through the Amiga's MIDI OUT. The merged MIDI data is sent to the synthesizer's MIDI IN and also passed to the sound module's MIDI IN via the synthesizer's THRU port.

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Additional MIDI modules can be connected in the same way, as shown in Figure 5.

Here's a quick rundown on how MIDI works. All MIDI data except System Exclusive information is assigned to one of the 16 MIDI channels. When data arrives at a synth's MIDI IN, it is copied to the synth's MIDI THRU—so it can be passed to other MIDI instruments. The synth's response depends on the data's MIDI channel. If the synth is set up to respond to MIDI data on that channel, it will play a note, bend the pitch, or perform whatever action is appropriate. Data sent on other channels is ignored, though it is still passed on via the MIDI THRU port. Most synthesizers allow you to set the channel(s) on which they will transmit and receive. So for a synth to respond to MIDI data, two conditions need to be met: the data needs to be routed to the synth's MIDI IN by a MIDI cable and the synth needs to be set to respond to the same MIDI channel as the data. Unfortunately, some synthesizers can transmit or receive only on certain channels. To get around these limitations, most Amiga sequencers can re-channelize a MIDI input while merging it with their output, so that notes the Amiga receives on one channel can be output on another channel.

This setup shown in Figures 3 and 4 allows the MIDI sound module to be played by both the sequencer software and the synthesizer keyboard at the same time—with a couple of minor problems, though. Assume that the synth is set to transmit and receive MIDI data on Channel 1. When a key is pressed on the keyboard, the synth plays a note and transmits a MIDI note-on command on Channel 1. This command travels to the sequencer, merges with the sequencer's output, and then returns to the synth through the Amiga's MIDI OUT. When the synth receives this note-on command on Channel 1, it plays the note *again.* This uses another voice on the synthesizer, reducing the number of notes it can play simultaneously. Several solutions to this "MIDI feedback" problem present themselves. You can set the synth to transmit and receive MIDI data on different channels, so that the synth ignores the note-on command because it does not receive MIDI on that channel. You can set your sequencer to re-channelize MIDI data so that it plays on a different channel—or turn off the sequencer's merge feature. The best solution, if your synthesizer supports it, is to put your synth in LOCAL OFF mode. This mode disconnects the synth's keyboard from its sound-producing circuitry. The synth still produces a MIDI note-on command when a key is pressed, but it doesn't make any sound unless it receives MIDI information through the MIDI IN port. This solves the MIDI loop problem. If the synth is set not to respond to MIDI data, you can play the sound module from the synth's keyboard without the synthesizer producing any sound.

One other problem presents itself with the setup in Figures 3 and 4: if you follow the dotted line from the module's MIDI OUT, you'll see that both the synthesizer's MIDI OUT and the module's MIDI OUT need to be connected to the Amiga's MIDI IN. The connection from the module's MIDI OUT to the Amiga is important only if you want to use a patch editor or to record System Exclusive data from the module. Unfortunately, you can't use a "Y adapter" to merge two MIDI inputs. To get around this problem easily, switch cords whenever you want to use the module's MIDI OUT. Unfortunately, fiddling behind the computer to change MIDI cables soon grows annoying. A slightly more expensive solution is to get a MIDI merger, which merges two separate streams of MIDI data into one. More sophisticated mergers can route data from up to six inputs to a computer. Professional approach: buy a MIDI patchbay, which can save a variety of different MIDI cable routings and switch between them at the touch of a button. Most patchbays also include merge features. This option will allow you to define a routing like Figure 2, which lets you play a MIDI module from your synthesizer. You can then switch to the routing shown in Figures 3 and 4 whenever you want to do sequencing.

That covers the MIDI side of things. But audio routing has mysteries of its own. I'll start with the bottom line: if you're serious about MIDI, you will eventually need to buy a real mixer to handle audio outputs from your synthesizers. In the meantime, you can use low-budget alternatives. Building an affordable MIDI setup means using your present equipment. Plug your headphones into your synth's headphone output for the simplest audio setup. This works but it is fairly limited. It would be better to activate your stereo receiver and speakers as the base of your system.

If you want to combine the output from several synthesizers, you will need some kind of line mixer. Several companies have recently introduced line mixers that will combine several different signals for under $100. In a pinch, you can use Radio Shack's four-channel microphone mixer, about $35. Adding a line mixer with an "effects" send-and-return feature especially enhances a small setup. Plug the output from each synthesizer or module into the mixer, and then send the mixer's output to your receiver. You can also plug the Amiga's audio outputs into the mixer so you can hear the Amiga's sound along with your synthesizers. Try to keep the synthesizer's stereo outputs on the correct channels of the stereo to maintain the stereo effect.

If you have an unused input on your receiver, the mixer's output can go right into it. If not, Radio Shack makes a $35 Tape Control Center that is useful for adding additional inputs. It plugs into a receiver's tape inputs and outputs and adds connections for three audio devices. One device can be the tape recorder you had hooked up to your receiver. The second can be the output from your mixer, or the output directly from your synthesizer. The third connection can be used as an effects loop. If you patch an effects device like a digital reverb or an equalizer into this space, you can use the Tape Control Center to send the signal to the effects device. The synth or mixer output is sent to the reverb, and the reverb output is then sent to the receiver, the tape recorder, or both. This arrangement allows you to listen to and record the synth output with or without the effect signal. Remember to switch on the receiver's tape monitor to hear the synthesizer's output. Now you've added greater flexibility at low cost—a laudable achievement for any Amiga MIDI setup. •AC•

Please write to Phil Saunders, c/o Amazing Computing, P.O. Box 869, Fall River, MA 02722. Or leave Email with ID #73077,2732 on CompuServe.

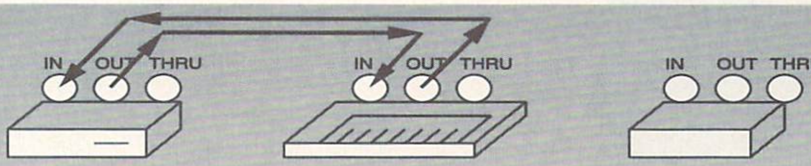

Figure 1: The flow of MIDI data with one synthesizer.

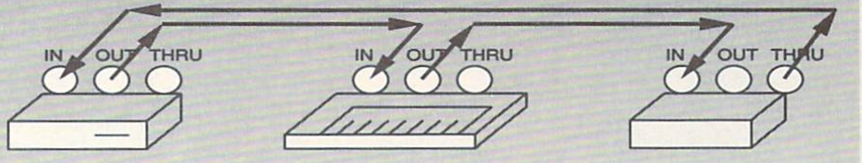

Figure 2: Adding an additional MIDI sound module.

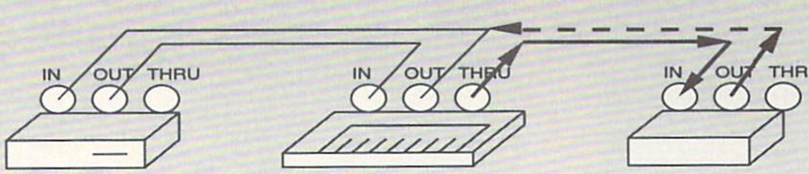

Figure 3: Connections needed to properly hook a sound module to the Amiga.

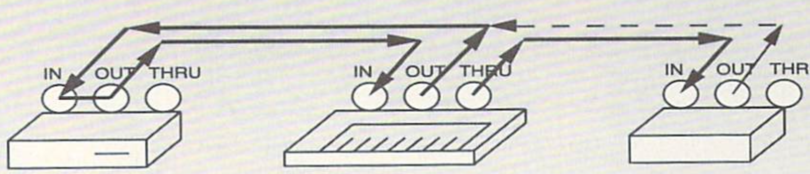

Figure 4: Path taken by the notes played on the synthesizer.

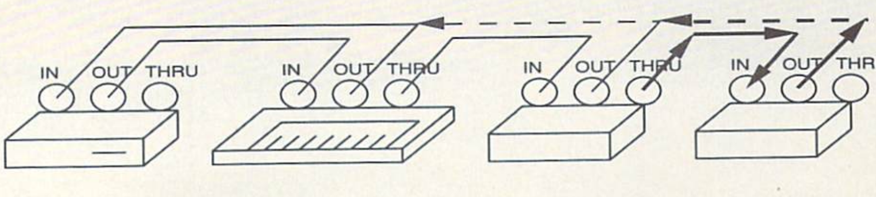

Figure 5: Additional MIDI modules may be connected as shown.

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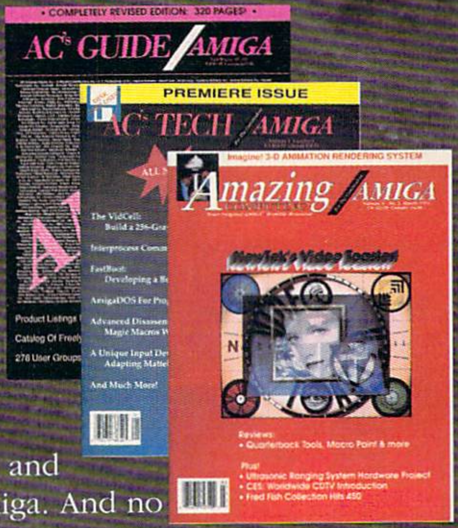

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REVIEW

THE DISK COMPANY'S

MAXIPLAN PLUS VERSION 2.0

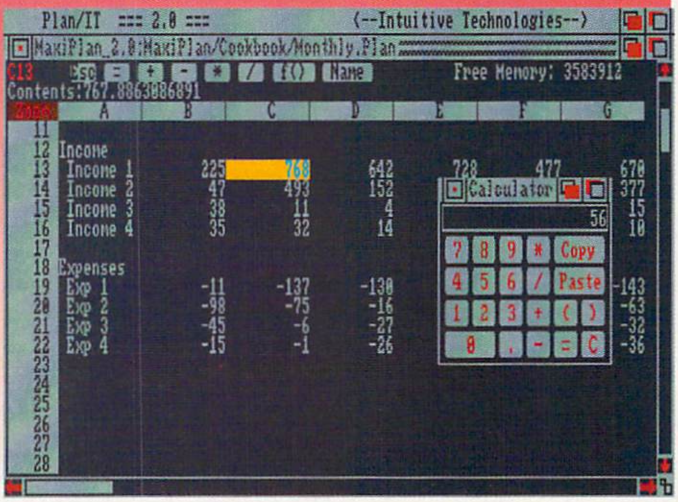
by Chuck Raudonis

NOT JUST ANOTHER SPREADSHEET, MaxiPlan Plus is also a full-featured business graphics system. In addition, MaxiPlan functions as a database, allowing the user to analyze, extract, and sort data in spreadsheets.

Set up and analyze spreadsheet data with over 70 available built-in functions.

INSTALLATION AND DOCUMENTATION

Since this program is not copy protected, one need only drag the MaxiPlan drawer from the distribution diskette onto the hard drive window using Workbench. Once the copy is completed, MaxiPlan is ready to go.



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11							
12	Income						
13	Income 1	225	768	642	728	477	670
14	Income 2	47	493	152			377
15	Income 3	38	11	4			15
16	Income 4	35	32	14			10
17							
18	Expenses						
19	Exp 1	-11	-137	-130			-143
20	Exp 2	-98	-75	-16			-63
21	Exp 3	-45	-6	-27			-32
22	Exp 4	-15	-1	-26			-36
23							
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28							

56

One additional step—not explained in the manual—requires dragging the drawer named PlanHelp from the MaxiPlan drawer and placing it in the root level window for the package to find its help files. In addition, the manual states that MaxiPlan can be run on a 512K Amiga if a special start-up is copied from the distribution disk onto your Workbench disk. Be sure to check the README file, for they are named differently in the manuals.

The documentation provided with the package is excellent. The manual serves as a terrific reference for the experienced user. Everything is organized by function and is easy to find. For the novice spreadsheet user, the manual includes a good tutorial, which assumes that the user has never worked with a spreadsheet before. This section can take even the most computer-phobic user and start him or her on the road to analyzing data. Adding to the usefulness of the manual, each menu on the menu bar has a help selection.

SPREADSHEET

The spreadsheet has all the standard features plus a few innovations. The user can have up to three spreadsheets open at a time—facilitating cutting and pasting between spreadsheets. MaxiPlan has over 70 built-in functions for analysis of spreadsheet data, including Trigonometric, Logical, Time and Date, Statistical, Financial Analysis, Table Lookup and worksheet formatting functions. The maximum size of a MaxiPlan spreadsheet is 512 columns by 32,760 rows, and should that not be enough room, individual worksheets can be linked with other spreadsheets using the Refer function to summarize or roll up results. The Refer function can call in the current value of a cell from another worksheet on the disk.

MaxiPlan has an impressive feature not present in most other spread sheets: password protection. Sections of the spreadsheet or even the whole spreadsheet can be protected with a password. When the spreadsheet is loaded, the protected areas show up as dashed lines, and data in the protected cells cannot be viewed. This feature is a benefit to anyone needing to protect sensitive data while allowing access to other data on the spreadsheet.

MaxiPlan's innovative Zoom Display shrinks the display to a representation of the full spreadsheet. The spreadsheet is represented as a tiny grid with colored cells representing those containing data. The user can then view the structure of the entire spreadsheet, move around quickly, and perform extended selections easily. To move around the spreadsheet, the user only need click on the zoom mode, select the cell that is to be the new upper left cell of the normal window, and then exit the zoom mode. There is no need to page around with the scroll bars to find the desired data.

MaxiPlan supports two and three bitplane, medium and interlaced resolution screens. This gives four or eight colors and a maximum of 19 or 44 rows of data on the screen at once. MaxiPlan also supports Lotus 1-2-3 files. The system loads and saves .WKS and .WK1 files. While MaxiPlan has a macro language, it does not execute Lotus macros. In addition to the Lotus file format, MaxiPlan imports and exports standard ASCII files that are delimited by the TAB character.

Formatting a worksheet is easy in MaxiPlan. Cells can be displayed in all standard formats: General (not formatted), Fixed decimal, Currency, Date (dd-mmm-yy, dd-mm, mmm-dd), Time, and Percentage. In addition, the number of decimal places, color of the text, style of the text, and horizontal alignment can be set for each cell. The width of a column can be set in any of three ways: the width can be selected from two default settings (10 and 31 positions wide), the actual width can be input into a requester to set the width of the column, or the column can be adjusted with the mouse. To adjust column width via the mouse, the user points to the edge of the column in the header bar, clicks on the edge, and drags the column to its new width.

MaxiPlan is certainly one of the most full-featured spreadsheet packages available for the Amiga.

DATABASE

While MaxiPlan is not a true database in the sense of a product like DBase III or Paradox, MaxiPlan's included database tools do enable users to perform various analyses of their spreadsheet data.

Data is entered into the spreadsheet as rows. The columns represent the fields of data. The first row in the data table is used to identify the data below it. Thus, a sample first row in a data table might look like this:

Last Name First Name Date of Birth Dept.

The data is then filled in under the headings, each record in its own row. Once the data is in place, the database functions can be used to analyze it.

MaxiPlan has the ability to establish a sort order for the data. For example, you can sort the database by Last Name. The attractive part of this feature of the database is that the sort is not hard-coded into a menu somewhere. A cell on the worksheet is designated as the location of the sort key, and the name of the column that is to be the sort key is input into this cell. The sort is then executed, and a second cell is designated as the sort order—ascending or descending. To change the order of the data, one need only to change the name of the column in this cell and select sort from the menu.

The other database features of MaxiPlan allow the user to search a database for records, extract data from a table, and delete records from a table, all based on a user-defined criteria. As in the sort example above, two cells in the worksheet are defined. The first cell contains the name of the column to be selected against, and the second cell contains the selection criterion.

Once the range is established, the Search, Delete and Extract functions can be executed. The Search function highlights the records in the table that meet the criteria. This is a handy way to locate all the records in a table that fall into a certain category. The Delete function removes all the records in the table that meet the criteria. The Extract function creates a second table on the same worksheet that contains only the records that fall within the selected range. If the user has a large worksheet containing all the employees from two departments and needs to split the worksheet into two smaller sheets, each holding data for one department, MaxiPlan makes this easy to accomplish. Just establish a range that selects the data for one department and run an Extract. Then, cut and paste the resulting table of that department to an empty worksheet, and invoke the Delete function to remove the copied records from the first data table. This whole procedure can be accomplished in less than one minute!

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Multiple criteria ranges can be established and a desired range can be selected using a requester. This allows flexibility in processing.

CHARTING

The MaxiPlan charting module is not as powerful as some stand-alone charting programs, but it does include some very powerful charting tools.

Up to eight charts can be defined for each spreadsheet. Defined charts can be displayed by choosing them from the menu. So as the data changes, it is easy to review the charts to spot trends in the data.

MaxiPlan produces line, 2-D and 3-D bar and pie charts, area charts, stacked bars, scatter charts, hi-low and step charts. The charts can be manipulated with the mouse to put the finishing touches on a presentation. Three-dimensional charts can be rotated and skewed to produce the most satisfactory angle for viewing. Individual pie chart slices can be exploded for emphasis, and bar-and-line charts can be modified with the mouse by dragging either the point on the line, or the bar itself. When a chart is adjusted in this manner, the data in the underlying worksheet is changed to match the new chart. This is an interesting feature and a powerful tool.

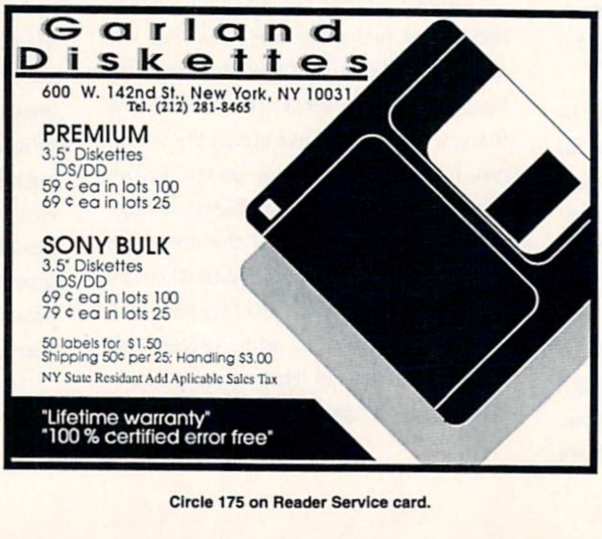
While the charting tools are significant and customization options are many, one feature is curiously absent. That is, it is impossible to format text appearing on the charts. Titles, legends, range markers, and all other text on the charts are rendered only in the basic system font. To produce presentation-quality output on its own, this program really needs a built-in capability to apply large point sizes, different style fonts, and character attributes to chart text. MaxiPlan supports the Amiga Preferences printer drivers and standard IFF files. The lack of text control within MaxiPlan can be compensated for by leaving all text off your charts and importing the resulting IFF file into a good paint program, but this is one step that should not be necessary.

MaxiPlan also has a rich macro language. With it, it is possible to automate any function that can be performed from the keyboard, making repetitive functions less of a chore. The macro language even has control functions that provide if... then constructs, branching, and even subroutine-type macro calls to invoke a second macro from within the first. A macro recorder is included to help in creating macros. MaxiPlan does not support ARexx, so it is not possible to extend the control of the system outside the spreadsheet or to have other programs control the spreadsheet.

MaxiPlan certainly is one of the most full-featured spreadsheet packages available for the Amiga today. With its data analysis, charting, and macro automation facilities, it can handle most data analysis projects that will ever come up. •AC•

MaxiPlan Plus
Price: $99.95
Inquiry #223
The Disc Company
P.O. Box 67713
Los Angeles, CA 90067
(213) 478-6767

[Note: The Disc Company has released an updated version of MaxiPlan Plus 2.0 which makes the program compatible with Workbench 2.0. All registered owners of MaxiPlan Plus 2.0 will receive the upgrade free of charge and all new shipments of MaxiPlan Plus 2.0 will be the updated version.]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bug bytes

The latest in tips, workarounds and upgrades

by John Steiner

Summer is all but upon us, with the number of upgrade notices and new product releases having dropped to its usual summertime lull. Even the number of bug reports (except for the six- and eight-legged varieties, of course) has decreased as computer-related activities are set aside for more energetic pursuits. There are, however, several notable exceptions in both upgrade notices and bug reports.

product: Workbench 2.0
re: problems encountered when attempting to abort the print function in various programs
source: CompuServe posting

Via CompuServe EMail, Jim Murphy warned of a problem which could result in the loss of data when using DeluxePaint III's latest version (3.25) under Workbench 2.0. According to Murphy, "When printing a picture, if you press the 'Stop' button to abort the printing process, the program displays the sleep icon, and effectively hangs up. If the Workbench was loaded before printing was started, it is possible to switch to that and continue with other applications, but switching back to DeluxePaint returns you to the sleep icon. The only escape from the sleep icon is to reboot."

Murphy reportedly tried this procedure under Workbench 1.3, and printing aborted normally. He commented in his letter that he would be contacting Electronic Arts the next day, so I called him to find out what EA's response was. During the course of the conversation, Murphy's wife mentioned that a similar lockup had occurred recently when she tried to abort a document being printed with ProWrite.

Sensing a system bug, I loaded up Professional Page on my Amiga 3000, loaded a document and began printing. Upon choosing "Stop," the system hung up as in the other reported failures. I loaded several other applications and tried to get them to stop printing. Some did stop printing properly, others locked up in a manner similar to DeluxePaint, ProWrite, and Professional Page. It appears that the Murphys have discovered a *major* glitch in Workbench 2.0.

Murphy's system is a stock Amiga A3000 16/50 with Workbench 2.02, and a Citizen GSX140 printer. He usually has Dmouse and Starblanker running as background processes. The system I use is a stock A3000 25/50, Workbench 2.02 with no background utilities running, and a Brother M2518 printer. Amiga 3000 owners should be aware that this problem could result in the loss of important data. It would be wise to test your software for this problem. And be sure you save your output before printing. Documents can be left to finish printing, as the problem only occurs when you choose to abort the print function.

program: Runback
re: problems encountered when the public domain program is run with other programs (e.g., FaccII)
source: reader response

Offering a workaround to the problem reported in the March edition of "Bug Bytes" regarding the use of Runback, Toby Mason of Falls Church, VA wrote, "...There are several versions of Runback. I tried using several different versions to get a window to close on a utility program called Watchdog...

"The only version [of Runback] which worked was on Fred Fish #214 which is by Tim Maffett and uses the NULL: device by Gunnar Nordmark. Put the NULL: device in the mountlist exactly as Gunnar wrote it; then mount the device. Run the program using Runback and you should have no problems. The essential difference seems to be that this version of Runback has a true bit bucket which the others lack."

product: PageStream
re: release of new drivers including a revised PageStream 2.1 PostScript.driver
source: PeopleLink posting

A posting in PeopleLink's DEPOT (a desktop publishing special interest group) by Kevin

Davidson reported that a revised version of the PageStream 2.1 PostScript.driver is now available. It has been posted in PeopleLink's SOFT-LOGIK club library section 4. The revised driver has new code to allow PageStream to use certain public domain Adobe Type I fonts to print to a PostScript printer even though the font might not properly store its variables in a private dictionary. The file name is PS219.LZH, and it can also be found on Soft-Logik's support BBS at (314) 894-9957.

Other new drivers available for downloading in the Soft-Logik libraries are ProDraw import, TIFF import and EPS import modules. If you don't have access to a modem and would like any of the upgraded drivers, write or call Soft-Logik directly. *Soft-Logik Publishing Corporation, Box 290070, St. Louis, MO, (314) 894-3280, Inquiry #200.*

Speaking of PeopleLink messages, in the April issue I reported on a posting from PeopleLink regarding DCTV and a modification to certain Amiga monitors. I inadvertently forgot to mention that Robert Du Gaue (PLink ID: Robt*CCN) was the individual who posted the monitor fix. Thanks for the report.

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product: The Art Department
re: release of Version 1.0.3 and compatible device drivers
source: ASDG press release

In a flurry of press releases, ASDG has announced an upgraded release of The Art Department Professional that includes support for new color peripherals, new file formats, and new image-processing functions. Version 1.0.3 of The Art Department Professional adds direct control over the Impulse FireCracker24 display board and Progressive Peripherals & Software's FrameGrabber video digitizer. The image-processing program also adds image loader modules for files stored in MacPaint and HAM-E formats. Several new image-processing functions were also added, including a noise-reduction filter and a video tiling generator useful for creating presentation-quality backgrounds.

In addition to a new driver for the Polaroid CI-3000 Digital Film Recorder, ASDG also announced drivers for the Epson ES-300C flatbed color scanner and the Kodak SV6510 dye sublimation printer. These color imaging peripherals have been integrated into The Art Department Professional and can be accessed through the program's ARexx interface.

The drivers, which retail for $200, $250, and $200 respectively, allow your Amiga to connect with the high-end, professional-level graphics hardware, yet there is no requirement for any kind of hardware interface.

Each of the new Art Department Professional device drivers are available through standard Amiga distribution channels. The program itself carries a list price of $240. Registered owners of prior versions will receive an upgrade to Version 1.0.3 automatically at no charge. For more information, call Gina Cerniglia at ASDG. *ASDG Incorporated, 925 Stewart Street, Madison, WI 53713, (608) 273-6585, Inquiry #201.*

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product: 4004/4005 genlocks
re: Amiga 3000 compatibility
source: Magni Systems press release

Magni Systems has announced the availability of Amiga 3000-compatible versions of their popular model 4004 and 4005 genlocks. The company is offering A3000 compatibility to previous Magni genlock owners who upgrade their Amiga systems. The boards can be upgraded by sending them to Magni Systems for a factory modification. Call for details on the upgrade. *Magni Systems, 9500 S.W. Gemini Drive, Beaverton, OR 97005, (800) 624-6465, Inquiry #202.*

---

product: ABC games
re: release of Version 1.01
source: Parth Galen spokesperson

Also this month, I received a letter from Max Altmann of Parth Galen, developers of the children's educational program ABC games. The program originally had a problem with sporadic lock-up upon completion of an exercise. Version 1.01 fixes this problem and is being mailed free of charge to all registered users. If you would like an upgrade, send in your registration card or contact the company directly. *Parth Galen, 6281 Trotter Road, Clarksville, MD 21029, (301) 531-3527, Inquiry #203.* •AC•

***Correction:** In last month's Bug Bytes, we mistakenly had a pull quote that read "The latest virus to make the rounds apparently appeared after a program called "TRON.wrp" was downloaded from PeopleLink." The virus is not from PeopleLink, but from another BBS. PeopleLink was simply posting the information. We apologize for the mix up.—Ed.*

Please write to John Steiner c/o Amazing Computing, P.O. Box 869, Fall River, MA 02722-0869. Or leave EMail to Publisher on PeopleLink or 73075,1735 on CompuServe.

DIVERSIONS

GAMES REVIEWED:

THE NIGHTBREED
MAGIC M.V.P. JOHNSON
HOVERFORCE
SEARCH FOR THE KING

by Miguel Mulet

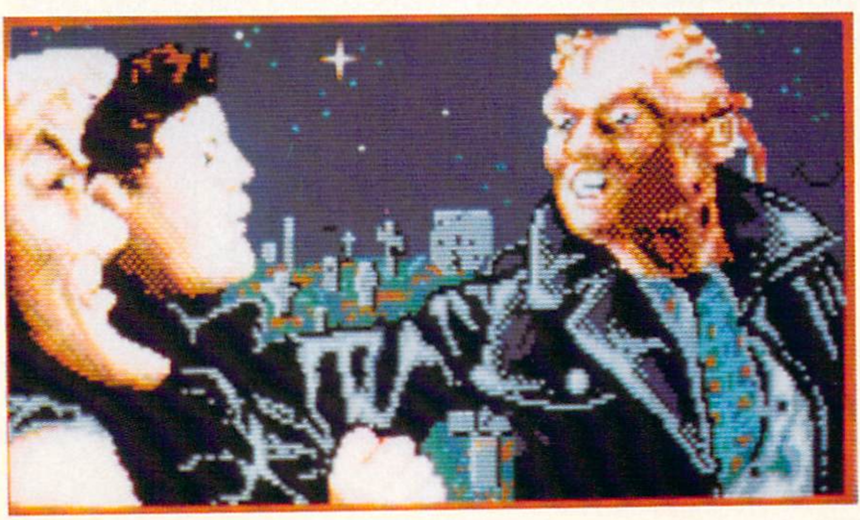
THE NIGHTBREED

In "The Nightbreed", you assume the role of Aaron Boone, a man accused of committing several murders. The only problem is, you don't think you committed them. You also have a psychiatric disorder, and just can't remember any details about the murders. While under psychiatric examination, you learn of Midian, a land inhabited by supernatural beings. The inhabitants are strange, to say the least, but you may escape the authorities if you can just make it there… and live forever with The Nightbreed.

The Nightbreed is based on the movie and book of the same name (written by Clive Barker). This is one of Ocean Software's better games, mainly because it sticks to the plot of the movie fairly well. As Aaron Boone, you find Midian, but inadvertently lead the police there as well. Of course, the police wish to destroy the place, and it's up to you to stop them. In the game, you must follow a certain sequence in order to progress to the next level. This is fairly easy, whether or not you have seen the movie. You control Boone using the joystick or keyboard, moving him through the complex tunnels of Midian.

While in Midian, you'll encounter many strange creatures, members of the "Breed." You'll have to defend yourself as you make your way to the heart of the complex, in order to free The Nightbreed. The best method of accomplishing this is to map out the areas to which you've been.

Game graphics and sounds are effective, but not spectacular. A word to the wise: like the movie, the game



One of the evil "Breed" finds Boone.

can get a little bloody, and is not recommended for younger audiences. The game is easy to learn, but more difficult to master. The game is provided on two disks, with one large documentation sheet. Unfortunately, there is no way to save a game in progress, so if you die, you must start over from the beginning.

Generally, I like this game, even though I find it difficult to say exactly why. While the plot is strange, the game has a certain addictive quality. It isn't a game for everyone, but if you like the type of book that Clive Barker writes, you'll probably like The Nightbreed.

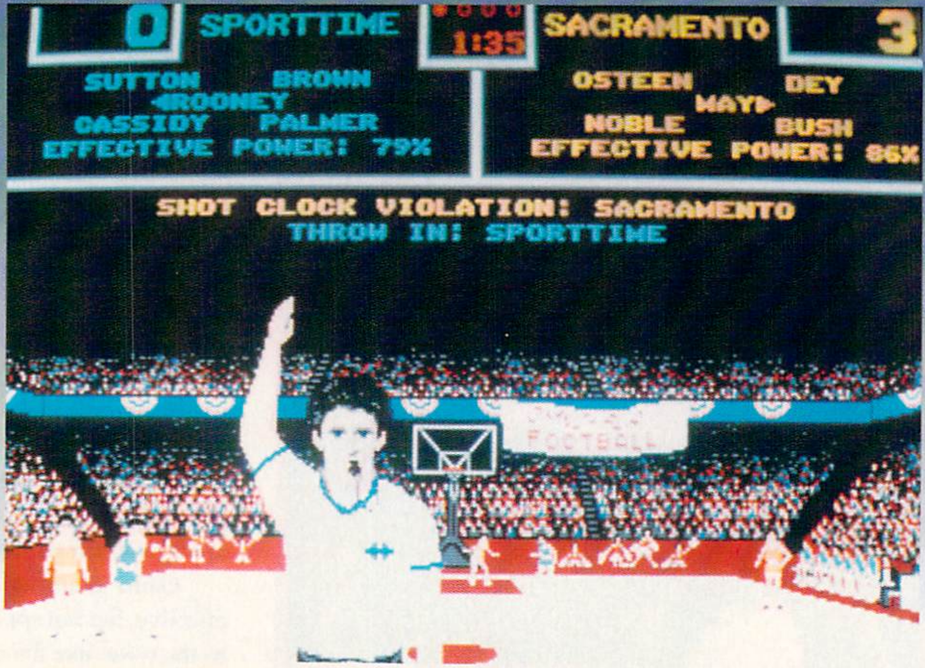
MAGIC M.V.P. JOHNSON

Now I'm not a basketball fanatic, but I do enjoy an occasional game of one-on-one. If you can believe all the NBA commercials on television, there are many out there who really enjoy the game. Luckily, "Magic MVP Johnson" is a game for anyone interested in basketball, from novice to expert.

Magic MVP Johnson (henceforth to be referred to as MVP) is a multifaceted game. If you're a beginner, you can just watch the computer as it plays through several games, or even an entire season. As you begin to understand the game better, you can get started by controlling a player, but you should allow the computer to make all the coaching decisions. Once you become a real basketball jock, you can run entire leagues, facing computer or human opponents.

Within the game itself, the strategies available are almost confusing. Your player can do lay-ups, jump shots, block shots, even commit intentional fouls. Just as in real life, players become injured or are thrown out of the game. As coach, you can decide on both offensive and defensive strategies, as well as player substitutions. If all of these features become boring, you can also add, at additional cost, modules that will allow you to play by college rules, or control actual professional teams from the 1989–1990 basketball season. The possibilities are almost endless.

The players are controlled via a joystick interface, which works quite well. If you prefer, the on-screen players can be controlled by the keyboard as well. The game graphics are effective, but not spectacular. Sound effects are put to good use, from the roar of the crowd to the dribbling of the basketball. The documentation combines instructions for the IBM and C64 versions of the game, so it is a little difficult to read straight through. Also, if you don't know the rules of basketball,



SHOT CLOCK VIOLATION: SACRAMENTO
THROW IN: SPORTTIME

Experience real NBA action. Here, the referee calls a foul.

you won't learn them from the documentation included.

I really enjoy Magic MVP Johnson. It's fun to play, and as your experience grows, new coaching challenges appear. The players have a number of moves, and it's interesting to watch them slam dunk the ball, especially when they break the backboard!. If you're interested in basketball, make a fast break to pick up Magic MVP Johnson.

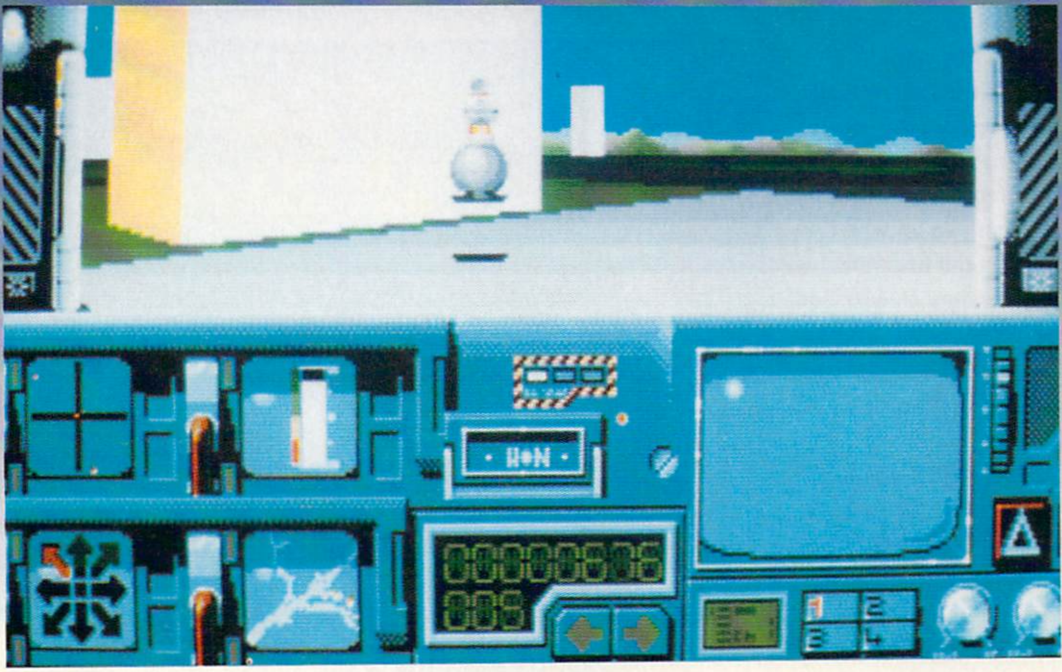
HOVERFORCE

The year is 2050 AD. Drugs have become public enemy #1. The most addictive and mind-altering drug of this century is known as Aftershock. Druglords completely rule MegaCity, using addicts as their armies. Police authorities have assembled an elite force of biotechnically enhanced pilots to fly their latest weapon against drugs—the Hoverkill 1000. The group's name: the Red Wasp. The group's mission: to seek out and destroy the Aftershock and its users. Will you join the "Hoverforce"?

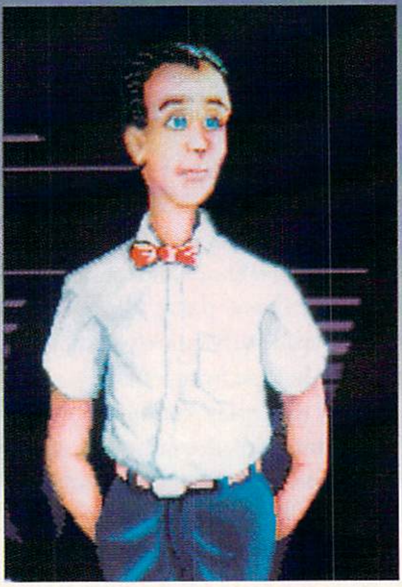
Hoverforce is played as if you are sitting in a Hoverkill 1000 hovercraft. The main viewscreen reveals the outside world, while underneath this viewscreen are many instruments including a compass, a map, a radar unit, and indicators which tell you how much shield energy you have left. As you patrol MegaCity, your mission is to destroy Alterants while on their supply run, collecting resources and evidence along the way. Once you have collected enough resources, you can stop at a hovershop and increase the capabilities of your craft by buying better weapons or shields. If you are successful in deterring the supply run three times, you move on to the next quadrant. Return all four quadrants of MegaCity to police control, and you've won the game.

Control of your hovercraft is via the mouse and the keyboard. Although there is a small learning curve, it doesn't take much time to get the hang of it. The manual helps in identifying most of the bad guys, but you'll have to read through it to pick up hints on finding the hovershops and the details of the instrument panel. The game graphics scroll fairly quickly, with the usual arcade-type firing effects.

Good gameplay combined with an interesting plot, decent sound, and graphics makes for a fairly good arcade game. The game is fairly challenging; and if you like the premise, it will keep you busy for a while. So if you want to do more than just say "no," consider teaming up with Hoverforce.



View from inside the Hoverkill 1000.



Our hero, Les Manley.

SEARCH FOR THE KING

With a name like Les Manley, you know things are going to be tough for your character here. While Les may not be the definition of the word nerd, he comes pretty close. Poor Les gets by in life by manually rewinding video tapes at a local TV station, all the while wishing the girl of his dreams would notice him. It seems the station Les works for has offered a reward of $1,000,000 to the first person who can find The King. If Les can find him, he would not only be a national hero, but also a rich man! What better way to shake that nerd image (and get the girl) than to find the one, the only, The King!

"Search for the King" is a graphic adventure game in which you assume the role of Les Manley, in search of Elvis Presley. You walk Les through the various scenes via the mouse or keyboard, in search of clues and items that will help you in your final quest. It's probably easier to stick to the keyboard, however, as all of Les's other actions must be typed in. The game does feature a buffer which stores your last four commands in memory, for easier access.

The game spans five disks, and also includes a clue book to help you through the game. The clue book is divided into different sections offering hints, step-by-step solutions to the game, and ways to score points in the game. Game graphics are fairly well done, although not all the items Les may need are readily visible. A soundtrack serves well as background music during the game.

Search for The King is a fairly classic graphic adventure. It sports the older type-in interface, which means you often have to rephrase what you want to do until the wording is just right. The puzzles in the game are challenging but not impossible, and the humor seems to be tongue-in-cheek throughout. There are a couple of situations in which the imagery is strictly for adults, but the game does allow you to skip these nonessential scenes in case young eyes are around. •AC•

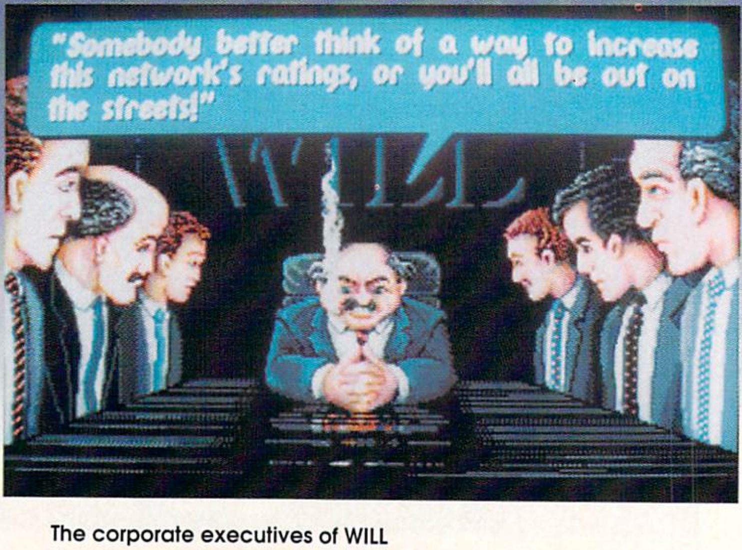
PRODUCT INFORMATION

The Nightbreed
Price: $39.95
Inquiry #227
Ocean Software
Distributed by Electronic Arts
P.O. Box 7578
San Mateo, CA 94403-7578

Magic M.V.P. Johnson
Price: $49.95
Inquiry #226
Virgin Mastertronic, Inc.
18001 Cowan Street
Irvine, CA 92714

Hoverforce
Accolade
Price: $49.95
Inquiry #225
550 S. Winchester Blvd.
San Jose, CA 95128

Search for the King
Price: $59.95
Inquiry #218
Accolade
550 S. Winchester Blvd.
San Jose, CA 95128


"Somebody better think of a way to increase this network's ratings, or you'll all be out on the streets!"
WILL

The corporate executives of WILL dream up a scheme to boost ratings.

PD Serendipity

Insight into the World of Public Domain Software for the Amiga

Browser—A Programmer's "Workbench"

Now moving, copying, renaming, and deleting files and directories is easier because of Browser. Not only does it make these Workbench and CLI commands easier to execute, but Browser lets you execute both CLI and Workbench programs.

When executed, Browser displays windows containing files and directories. From these windows you can execute any of the previous mentioned commands. To select a file, click on it once. From here you can delete, rename, copy, etc. If you click on a file and hold the left mouse button and then drag the mouse to a different directory or window, Browser attempts to move the selected file to the new directory. Double clicking on a file opens it; on a directory, the contents are displayed; and on a program, the program is executed.

Browser comes with two main menus, Browser and Actions. Browser contains commands such as Open, Close, and Quit. These commands relate to the Browser environment itself. The Open and Close options here refer to opening and closing Browser windows. The Quit is obvious. Two other options under this menu are Sel All and Sel Match. Sel All selects all the files in the active window while files that were currently selected will be unselected. This acts like a toggle switch. Sel Match is similar to Sel All, but it allows you to enter a pattern, and only those files whose names match the pattern are selected.

The Actions menu contains commands that directly affect the files and directories listed in the Browser windows. Some commands include Rename, Delete, Duplicate, and MakeDir. To use these commands, simply select the file and choose the desired command. Two other options are WB Tool and CLI Tool. These are to be used with the Tools menus (explained below). WB Tool allows you to add a file as a Workbench tool and CLI Tool allows you to add a file as a CLI tool to the Tools menu.

by Aimée B. Abren

GAME PROGRAMMERS

Amiga, Macintosh, and MS-DOS programmers needed to develop leading edge interactive entertainment products. BS in Computer Science, Math, Physics, or equivalent industry experience. Experience programming the Amiga, Mac, or PC in C and assembler required. C++ and graphics background a plus. Dynamix offers an exciting, high growth environment, plus excellent wage and benefits. Send cover letter and resume to:

Dynamix, Inc.
99 W. 10th, Suite 224
Eugene, OR 97401
Attn: Programming Position

Dynamix®
PART OF THE SIERRA FAMILY

Circle 178 on Reader Service card.

The Tools menu lets you select an entry in the menu and then execute the entry as either a Workbench or CLI program depending on which tool option was used. Because the Tools menu includes files chosen by the user, it starts out empty. The included documentation explains how to set up the menus.

Although Browser doesn't have disk functions such as formatting and copying, it does take care of many often-used commands handled by the CLI and Workbench. Its ability to execute programs that are either Workbench programs or programs that need to be started from the CLI is a big plus. Browser runs under all versions of the AmigaOS including 2.0. It does not, however, support icons.

Fred Fish Disk #476
Version 1.7, update to FFD #180
Executes from the CLI or Workbench
Binary only
Author: Peter da Silva

Cache-Disk

Cache-Disk helps reduce the thrashing that occurs when a disk is being accessed by more than one process by caching tracks of data. Cache-Disk intercepts all read and write operations with the trackdisk.device. When Cache-Disk receives a requester for data on a certain track, it reads the entire track and places it in a cache buffer. This way if more data is needed, it will likely be on that track since data is usually stored sequentially. By putting the entire track in a buffer, it eliminates accessing the disk any further. This then increases speed unless, of course, the data needed is not on that track.

When Cache-Disk receives another message for more data on a different track, it reads that entire track and places it in a second buffer. The number of buffers is limited to the amount chosen upon running Cache-Disk. Once all buffers are full, Cache-Disk automatically discards the least recently used buffer to make room for a new track.

One problem with Cache-Disk is that it uses chip memory. Also, if you deactivate Cache-Disk (by running it again) while a disk is being accessed, you may corrupt the disk.

Fred Fish Disk #462
Version 1.0
Executes from the CLI or Workbench
Binary only
Author: Terry Fisher
Shareware

Agnus Copy

Agnus Copy is a disk-copying program with an intuition user interface that can copy an entire disk or part of it. Agnus Copy copies an entire disk in 1:34 minutes. Although this is not very fast, Agnus Copy supports multitasking. So if you are not in a rush and have other things to do, it works out nicely.

When started, Agnus Copy opens a window and prompts you for the source and destination drives. From here you can choose a starting and ending track, if you want to copy only part of the disk. Once you hit start, Agnus Copy begins. If it runs into any problems while copying, Agnus prompts you with a window explaining the error. If it is a track error, you have the option to Cancel or Skip the track.

One thing to remember is that after Agnus Copy finishes copying, be sure that you eject the disks before quitting the program. There is only one known problem with Agnus Copy: it cannot copy a disk (source) that has the same name as the destination disk. For example, if both have the name "empty" and you try to copy, Agnus Copy will cause your machine to crash.

Fred Fish Disk #455
Version 2.0
Executes from CLI or Shell
Includes source in Modula II
Requirements: 2 disk drives
Author: Andreas Gunser

NewList

NewList is a CLI command similar to the AmigaDOS List command, but much more powerful. It is loaded with different sort options; it supports filters and UNIX wildcards; and it allows you to create your own date format or use one of five that are included. Sorting can be by name, size of file, or date. Use filters to sort alphabetically, ignore .info files, display only those files that were created in the last x amount of days, or list files in reverse. As you can see, NewList comes with a variety of sorting features to choose from.

The date format feature provides many flags for customizing the way you want a date to appear. The five included date formats range from displaying the full date with the day included, to the common AmigaDOS format.

Fred Fish Disk #478
Version 4.9 (update to 4.5 on FFD #465)
Binary only
Author: Phil Dietz

TDraw

TDraw is a Title bar editor that was created to be used with John Everett's TBar program. TBar allows you to change the pattern in the Workbench windows. Five patterns are included and you can also create your own patterns.

TDraw is an editor that allows you to create, save, and test patterns. You can view a pattern you created outside a window at a later time. Included with TDraw is the utility TRand. TRand, when executed, randomly selects a pattern you have created everytime you start up your Amiga. This is done by creating a config file.

Fred Fish Disk #465
Version 1.0
Binary only
Author: Phil Dietz

nu̇-änce′, *n.*
a delicate degree
of difference.

Typesetting quality is in the details—details often omitted for long lists of features. Details such as separate hyphens (-), en-dashes (–), and em-dashes (—). Details such as ligatures and kerns. Details such as vertical justification and a full range of diatrical marks. But there is no longer any need to compromise—you can have all of the features and all of the quality with

AmigaTeX

Many products allow you to import PostScript graphics from any source. AmigaTeX allows you to preview those graphics on the screen and print them to any printer, even dot-matrix printers. Some programs allow you to use PostScript fonts. AmigaTeX lets you use both Type 3 and hinted Type 1 outline fonts, on the screen and to any printer. Some packages allow importing IFF/ILBM images—but none provide the variety of dithering and filtering options available with AmigaTeX.

Multi-thousand page documents present no difficulties, even on a one megabyte Amiga. Mathematics and tables are typeset with unparalleled quality. If you are serious about putting words on paper, write for your free demo disk. Move up to the quality of AmigaTeX.

Radical Eye
Software

Box 2081 • Stanford, CA 94309 • BIX: radical.eye

Circle 171 on Reader Service card.

Ups & Downs

Based on the game Connect Four, Ups & Downs is played in a similar manner. The graphics are done very well and are pleasant to look at. The object of the game is to get four of your chips in a row before your opponent. The chips can be across, down, or diagonal. Choose between playing against another player, or play against the computer. If you choose to play the computer, you have two choices. Choose from you vs. the computer, in which case you go first, or the computer vs. you, in which case the computer will go first.

Ups & Downs does come with a few options. You can choose to turn off the voice, which is a good choice because after awhile it becomes annoying. Also if you hit the F1 key, you will be at the Workbench.

If you enjoy Connect Four, you will also enjoy Ups & Downs. Be careful: it is just as addicting.

Fred Fish Disk #462
Version 3.6
Binary only
Author: Jason Bauer

Now Available!
A **new** book from the author of
the Turbo Silver 3.0 Manual...

The
Imagine
Companion

With fully explained answers to all of your questions about Imagine, plus plenty of lavishly illustrated tutorials, tips, and tricks. Includes material on the new Imagine 1.1 version. Also free disk with example files!
Send check or money order for $29.95 postpaid (CA orders add $2.10 sales tax) to:

Motion Blur Publishing
915A Stambaugh Street
Redwood City, CA 94063

Imagine is a trademark of Impulse, Inc.

Circle 187 on Reader Service card.

ZOOM

Zoom is a fast floppy-disk archiving utility that comes complete with a virus-checking routine that will recognize 66 different bootblock viruses.

If you start Zoom from the CLI, type Zoom ? to get a list of all the different options. If executed from the Workbench, Zoom prompts you with a window full with gadgets with the same options. One nice feature of Zoom is its ability to examine the bootblock for any of the 66 viruses listed in the documentation. Among them are the LAMER virus, Byte Bandit, and REVENGE.

Zoom gives you the option to Check a Zoom file. If Check finds that a checksum is not in the correct place, Zoom prompts you with a message. You can also pick the starting and ending points of the tracks you wish to compress. Another neat feature is that Zoom has the ability to encrypt files that it creates with a special password. No one will be able to uncompress this file unless they know the password.

If you run Zoom from the Workbench, you get an added feature. On the right side of the Zoom window there is information like the amount of space left on the destination disk, the size of the encoded file, system memory, and the action currently taking place.

Zoom can be customized to your own preference. It allows you to change the default settings of certain actions taking place. You can have Zoom start and end with the same track each time when encoding. Also you can set verification on or off, and set NoIcons off if you do not want Zoom to create one.

Zoom comes with a separate program called ZoomCheck that examines the structure of any Zoom file and alerts you if any checksums are in the wrong place. Like Zoom, ZoomCheck can be started from the Workbench or CLI. You can save a "note" along with the file ZoomCheck is examining. The note is saved along with the date and time.

Fred Fish Disk #459
Version 4.1 (update to V3.10 on FFD# 436)
Executes from the CLI or Workbench
Binary only
Requires the ARP.library
Author: Olaf Barthel
Shareware

The following are updates that were included in the latest Fred Fish Disks. These are from disk #471 to #480.

BTNTape V2.0 on FFD #471 is an update to V1.0 on FFD #392.
Author: Robert Rethemeyer

MachIII V3.1 on FFD #471 is an update to V3.0 on FFD #378.
Author: Brian Moats and Polyglot software

Uedit V2.6e on FFD #371 is an update to V2.6c on FFD #415.
Author: Rick Stiles

CNewsBin on FFD #472 is an update to the one found on FFD #318 and #319. Author: Various

CNewsSrc on FFD #473 is an update to the one found on FFD #318 and #319. Author: Various

CrcLists on FFD #474 is an update to the one on FFD #401.
Author: Fred Fish

Imperium V1.66E on FFD #474 is an update to V1.50E on FFD #362.
Author: Roland Richter

GadgetED V2.3 on FFD #475 is an update to V2.0 on FFD #438.
Author: Jan van den Baard

ToolLib V8.1 on FFD #475 is an update to V7.6 on FFD #438.
Author: Jan van den Baard

Browser V1.7 on FFD #476 is an update to the one found on FFD #180.
Author Peter da Silva

MED V3.0 on FFD #476 is an update to V2.13 on FFD #424.
Author Teijo Kinnunen

Mostra V1.14 on FFD #476 is an update to V1.0 on FFD #330.
Author: Sebastiano Vigna

ToolManager V1.3 on FFD #476 is an update to the one on FFD #442.
Author: Stefan Backer.

NewList V4.9 on FFD #478 is an update to V4.5 on FFD #461.
Author: Phil Dietz

UUCP V1.13D on FFD #479 is an update to V1.08D on FFD #442. This is parts 1 and 2. Parts 3 and 4 are on FFD #480. Author: Matt Dillon

•AC•

CDTV

Welcome
TO CDTV
MULTIMEDIA
CDTV
MULTI MEDIA
Your introduction to the exciting world of CDTV Interactive Multimedia.
Commodore
COMPACT disc

The CDTV Welcome disc.

IT HAS BEEN ALMOST A YEAR since Commodore first announced Commodore Dynamic Total Vision or CDTV to the press and to invited guests at last summer's Consumer Electronic Show (AC July 1991). Since then, *Amazing Computing* has been covering Commodore's different announcements and subsequent launches of CDTV in Canada (January 1991) and Las Vegas (March 1991) as well as their first sales of this newest marvel at New York's World Of Amiga (May 1991).

We have taken a portion of *AC's GUIDE* and abridged it here to demonstrate some of the products currently available or proposed for CDTV. We hope that in doing so we not only provide our readers with a window into a new manner of Amiga computing, but also entice developers into providing even more CDTV possibilities.

Our interest in CDTV is based on the raw excitement that CDTV creates with its ability to manipulate large amounts of graphics, sound, information, and animation in a form that even the non-computer person can enjoy. In short, CDTV gives the best of the Amiga and multimedia in disguise. CDTV users rarely know that they are working with a computer.

But has this left out the Amiga user who has not purchased a CDTV player? No, CDTV will be available as a peripheral to Amiga 500 users through Commodore's A690. The A690 connects directly to the A500 expansion connector and provides all of the features found in the commercial CDTV "audio component" design, with the exception of the clock on the front panel. Amiga 2000 and 3000 owners will need to wait a little longer if they want the complete package from Commodore. CBM has not yet announced a CDTV peripheral for the professional platforms of the Amiga. However, CBM corporate executives are emphatic that a CDTV peripheral will be available.

ENTER XETEC

Xetec has announced that their CD-ROM players, CDx-650E and CDx-650I, will play CDTV titles. Currently, Xetec is demonstrating a 91% success rate in running direct CDTV titles on their equipment. Although these drives support conventional audio CDs, they will not be able to support the CD+G or the CD+MIDI audio discs.

In addition to the CDTV titles that will play on the system, Xetec's drives will also tap into the ever-growing library of CD information titles in development. With 540 megabytes of information available, these drives will go a long way towards increasing your Amiga's capabilities.

CDTV is only for those who want to learn, want to teach their children, wish to be entertained, love music, are curious, enjoy a challenge...

NO-FUSS AMIGA

Currently, CDTV consists of a CD ROM player and an Amiga 500 with a megabyte of RAM. This allows producers to develop CDTV packages with Amigas. Fortunately, there is a large number of developers who already understand the basic operating system of the Amiga. There is also a large number of tools currently available for developing on the Amiga, and every one of these tools is useful in programming for CDTV. The added bonus of 540 megabytes of accessible storage space on a CDTV CD-ROM grants developers a latitude of freedom never before available on the Amiga.

Commodore has remained adamant in their desire to make CDTV as "uncomputer-like" as possible. Basic input devices have been designed around infrared technology to eliminate wires. For more critical devices such as a mouse or keyboard, you can use an optional *Brick*. The keyboard, mouse, or joystick can be plugged into a black box called a "brick" which is pointed toward the CDTV player. This

CDTV has the ability to take you from President John F. Kennedy's commitment to Space to the trajedy of the Challenger shuttle disaster.

Above; A scene from Xiphias's Time Table of History: Business, Politics, & Media
Below: The Challenger disaster is replayed in Xiphias's Time Table of History: Science And Innovation

way, no matter how you orient the input device, the signals will travel correctly to the receiver. It also appears that these devices can be plugged directly into the back of the CDTV unit in the two input ports provided.

CDTV's simple infrared remote control device allows the user to access CDTV from anywhere in the room. While the buttons and arrow keys may take a moment to get used to, the device is designed to be easy to learn and to work in exactly the same way with each piece of software. Commodore has eased the learning process by providing documentation on disc.

The Welcome disc that comes with each CDTV is a highly interactive instructional aid on how to set up your CDTV. It highlights some of the features of CDTV and gives a list of current or future products. With the instructions for attaching your CDTV to a television contained only on the Welcome disc, it's fortunate that CDTV is easier to install than a video game or a VCR. Nevertheless, the disc is extremely valuable in configuring your system in different ways.

With the Welcome disc, you quickly become familiar with the way CDTV works. Since the disc is designed to function like any other piece of CDTV software, you are not only shown the variety and options of CDTV but you also learn to operate it. By the time you have completed the disk, you have learned to press the keys only in the correct sequence, and you know that the disc access light on the front panel of the CDTV player will tell you that you have accessed the next portion of a program.

The main thing to remember is that CDTV is designed not only for the average Amiga user but also for someone who is less than comfortable with a traditional computer. CDTV is designed to be easily accessible and very powerful without letting the user become bogged down in the technology.

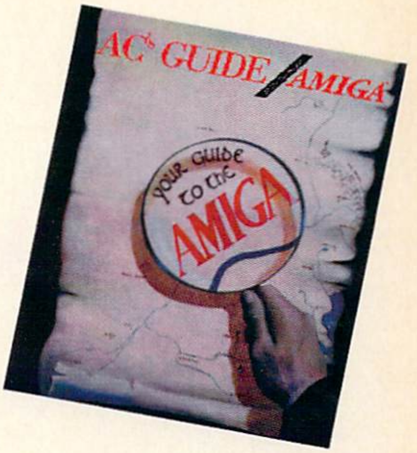
NEW PRODUCTS: NEW OPPORTUNITIES

Commodore Dynamic Total Vision is not for everyone. CDTV is only for those who want to learn, want to teach their children, wish to be entertained, love music, are curious, enjoy a challenge, appreciate a rest, and feel that their televisions should be more than passive instruments. With CDTV, the family television can become a center for learning and discussion. CDTV offers the best of a computer, a game machine, and a good stereo component. With CDTV, all of us have more access to information presented in a multimedia format conducive to learning.

CDTV products, such as Xiphias's Time Table of History, allow users to experiment and learn at their own rate and in their own direction. With Time Table of History you can listen to President John Kennedy announce the United States mission in space, or view the tragedy of the Challenger disaster. One noted inaccuracy: on this same set of remarkable discs, the Amiga is listed as having been introduced in 1987 instead of 1985.

While some companies are providing existing games in expanded format on CDTV, other companies are creating new products expressly for CDTV. CDTV as a platform is a great new environment for developers. Not only do they have all the tools and features of the Amiga platform, but they have the added space and reliability of CD-ROM.

The future of CDTV is enormous. The list provided here is only a hint of what this new tool can achieve. Through the efforts of third-party developers, we will see not only the expansion of CDTV possibilities, but, with the help of new peripherals from CBM, also the growth of the Amiga.



CDTV: THE FIRST TITLES

◆ **A Bun For Barney**
A Bun For Barney is a delightful animated story for children aged 3 to 6 about a bear who learns to say 'no.' Animated by Melendez Films, producers of the well-loved PEANUTS specials on CBS Television, and narrated by Tom Baker. $49.95 *Multimedia Corporation*

◆ **A Long Hard Day on the Ranch**
Desperate bandits, runaway cattle, wild stallions, hungry ranch hands, mountain lions, and broken toes hold no terrors for our imaginative hero–a young boy spending the summer on his aunt and uncle's ranch. $44.95 *Discis Knowledge Research*

◆ **Advanced Military Systems**
Advanced Military Systems provides information on the world's finest military technology. The newest and most advanced military hardware is featured in over 1500 action photographs accompanied by music and narration. $39.95 *Dominion Software & Design, Inc.*

◆ **Airwave Adventure: The Case of the Cautious Condor**
Explore hundreds of images, hours of audio, and thousands of possibilities. Join Ned Peters, detective, and a colorful cast of suspects on board the 1937 maiden voyage of the Condor. You have thirty minutes to solve the crime on this thrilling flight into history and murder. $49.95 *Tiger Media*

◆ **Animated Coloring Book**
For kids, and the child in all of us, the Animated Coloring Book makes it simple to create beautiful pictures and then bring them to life. Using up to 61 crayons (colors), you pick up the one you want and click to fill in the outlines. Then with a click you can bring your colored picture to life through animation. $39.95 *Gold Disk, Inc.*

◆ **Barney Bear Goes to School**
Barney Bear Goes to School is a learning game for pre-school children that combines colorful, animated graphics and rich, 'multi-track' audio. The game asks children to identify objects on the screen and then rewards them for correct choices with audio response. Once Barney is in his schoolroom, children may choose from activities such as spelling games, counting games, shapes, and a coloring book. $39.95 *Free Spirit Software, Inc.*

◆ **Basketball**
Basketball brings all the on-court excitement and backroom strategy of real-life basketball into your own home. The 'SBA League' allows you and a friend to own, manage, and coach your own basketball teams. One or two players can challenge each other, or watch the computer play itself. $49.95 *Context Systems, Inc.*

◆ **Battle Chess**
An entire medieval world at war is reflected on the checkered field. Colorful and dramatic 3-D animation. Play against a friend, against the computer, or let the computer play itself. $59.95 *Interplay Productions*

◆ **Bureau of Astral Troubleshooters**
B.A.T. is an adventure game that lets you become the one agent of the Bureau of Astral Troubleshooters who can save Terrapolis. Vrangor, a top scientist, and Merigo, a small-time crook, have announced their intention to set off nuturobiogenic bombs in Terrapolis, the largest city of Selenia. After time runs out, Selenia will be blown out of the galaxy. The countdown has begun, and it's up to you to foil Vrangor's evil plans. $49.95 *UBI Soft, distributed by Electronic Arts*

◆ **CD–REMIX**
CD–REMIX lets you take your favorite music CD and resequence pieces of it to make your own extended dance tracks or personal remixes. The easy-to-use icon driven language allows you to build your own storyboard of commands. $49.95 *microdeal*

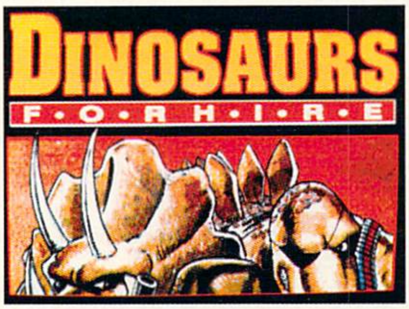
◆ **Cinderella–The Original Fairy Tale**
Most children will be familiar with the story of Cinderella–although not necessarily this version. Cinderella, 'both good and beautiful,' still marries her prince, but she also finds rooms in the palace for her two stepsisters–and even arranges aristocratic matches for them! For children 6 years and older. $54.95 *Discis Knowledge Research*

◆ **Classic Board Games**
Classic Board Games enables you to play Chess, Checkers, and Backgammon on your television. Audio directions and updates are provided in six languages: English, German, Japanese, French, Spanish, and Italian. $49.95 *Merit Software, Inc.*

◆ **Complete Works of Shakespeare**
The complete works of the world's greatest playwright is now available on a single compact disc. All major scenes are illustrated with reproductions of original woodcuts. $49.95 *Animated Pixels*

◆ **Composer Quest**
Composer Quest offers a revolutionary, interactive, and fun way to learn Music History through the work of the great composers, from 1600 to the present. *Dr. T's Music Software, Inc.*

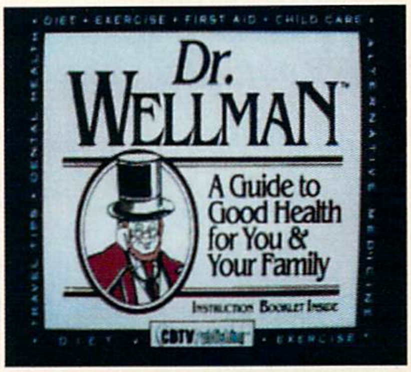
◆ **Dinosaurs for Hire**
What happens when three out-of-time gun-toting dinosaurs hit the streets? Bullets fly, evil-doers tremble, and insurance rates go through the roof. Dinosaurs for Hire is another in a series of comic books on disc. Hundreds of pages, thousands of screens, and more fun than you can shake a Tyrannosaurus at. *Wright Enterprises*



◆ **Dominion**
Dominion is a traditional strategy game brought to television. Each player buys and sells national resources and maneuvers his or her armies, fleets, and air forces to protect and expand territory. The action is enhanced with music, sound effects, high-quality action images, and animation. $49.95 *Dominion Software & Design, Inc*

◆ **Dr. Wellman**
Dr. Wellman is a comprehensive home health system covering all the areas of health care relevant to an average family. A unique keyword system provides a dictionary of over 600 explanations for names, terms, symptoms, and conditions. Contains password-protected sections dealing with adult health. $79.95 *CDTV Publishing*

◆ **Electric Crayon Deluxe: All Dogs Go To Heaven**
All Dogs Go To Heaven Talking Electric Crayon is an exciting title that transforms your television into an electric coloring book. Based on the animated film by Don Bluth, this disc is a must for all children and the young at heart. $49.95 *Merit Software, Inc*


DIET • EXERCISE • FIRST AID • CHILD CARE •
TRAVEL TIPS • DENTAL HEALTH
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(continued on page 64)

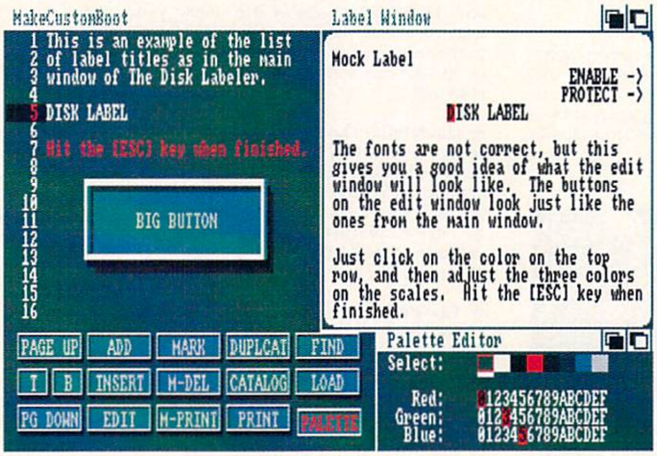
Two programs for improving productivity at home and at work

reviews by Jeff James

The Disk Labeler

IF YOU'RE LIKE ME, trying to find that important text file in a stack of unlabeled diskettes is akin to an Easter egg hunt—lots of scampering about and frantic searching for something in a nondescript wrapper. I've tried all of the usual disk-cataloging methods, like color-coordinated diskettes and handwritten labels. I've even scribbled on the disk itself, only to see my barely legible markings rubbed off after a few days of use.

Eventually I came to the decision that a dedicated label printing and cataloging program was next on my software shopping list. A few days later, my search led me to Software Technologies' (Softec) The Disk Labeler (TDL) program.



```
 1 This is an example of the list
 2 of label titles as in the main
 3 window of The Disk Labeler.
 4
 5 DISK LABEL
 6
 7 Hit the [ESC] key when finished.
 8
 9
10
11
12
13
14
15
16
```

```
Mock Label
                                    ENABLE ->
                                   PROTECT ->
                 DISK LABEL

The fonts are not correct, but this
gives you a good idea of what the edit
window will look like.  The buttons
on the edit window look just like the
ones from the main window.

Just click on the color on the top
row, and then adjust the three colors
on the scales.  Hit the [ESC] key when
finished.
```

```
Select:
  Red:  0123456789ABCDEF
Green:  0123456789ABCDEF
 Blue:  0123456789ABCDEF
```

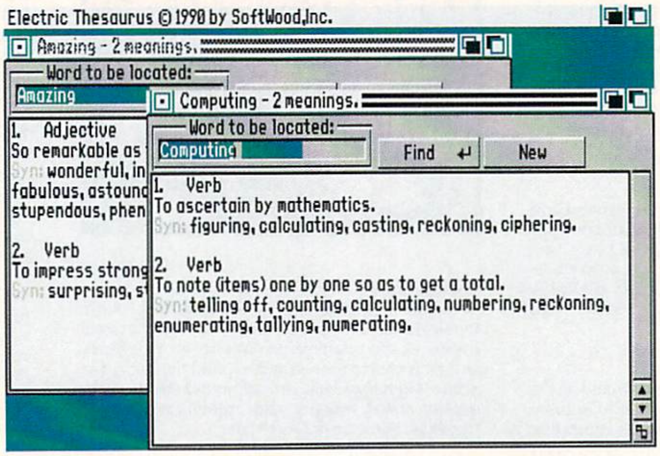
The Disk Labeler's color editing screen.

Electric Thesaurus

TO WRITERS, A THESAURUS is invaluable. It can help ferret out that perfect word for the sonnet you're writing, fine-tune the vernacular of your unpublished novel, or spruce up your letters to Aunt Edna.

And if you use your Amiga for word processing, chances are fairly good that the program you use has some limited thesaurus capability such as locating synonyms and antonyms. Some owners of older (Textcraft Plus) or less fully-featured (Transwrite) word processors might not have any thesaurus capabilities at all.

In an effort to satisfy both camps, Softwood (developers of Pen Pal) has introduced the Electric



```
Amazing - 2 meanings.
Word to be located:
Amazing
1.   Adjective
So remarkable as
Syn: wonderful, in
fabulous, astound
stupendous, phen

2.   Verb
To impress strong
Syn: surprising, s
```

```
Computing - 2 meanings.
Word to be located:
Computing
1.   Verb
To ascertain by mathematics.
Syn: figuring, calculating, casting, reckoning, ciphering.

2.   Verb
To note (items) one by one so as to get a total.
Syn: telling off, counting, calculating, numbering, reckoning,
enumerating, tallying, numerating.
```

Electric Thesaurus running in 640 x 200 mode on its own custom screen.

TDL is distributed on a single, non-copy-protected 3.5" diskette. A spiral-bound 20-page manual, a warranty/registration card, and a strip of over sixty 3.5" disk labels round out the package contents. The program includes an icon-driven hard disk installation script, making installation onto a hard drive fairly straightforward; Softec encourages users to immediately make a backup of TDL.

Softec has stated that TDL is compatible with all Amiga models running AmigaDOS 1.2 or higher with at least 512K RAM. I tested TDL on a range of hardware—from an Amiga 500 to a 25 MHz A3000 running AmigaDOS 2.0—without experiencing any problems.

TDL consists of two main programs: the disk labeler and the default editor. The disk labeler is where the actual label creation is done, while the default editor allows the user to customize some of TDL's default settings.

First up, we have the disk labeler. Upon entering the disk labeler, a requester pops onto the screen and presents the user with a number of options. This requester allows the user to load in a previously created disk label, or simply continue loading the program to create a new label.

The Disk Labeler consists of two main programs: the disk labeler for label creation, and the default editor for customization.

After this requester, the user is presented with a Workbench window approximately half the width of the Workbench screen, with the lower 1/3 of this window filled with an array of buttons. These buttons allow the user to harness most of the aspects of the program such as duplicating, printing, finding, loading, saving and scrolling through labels. TDL also features the ability to catalog and alphabetize disk labels, as well as an option that utilizes the Amiga voice to list verbally the textual content of your disk labels.

All of TDL's main functions are accessible by keyboard commands. The mouse may also be used to either point

---

Thesaurus (ET), a disk-based thesaurus for all Amiga computers. ET is detailed and comprehensive enough to satisfy the most power-hungry Amiga wordsmiths, while providing a standalone solution for users whose word processors lack that capability.

ET is contained on a single diskette, accompanied by a warranty/registration card, and a tersely written, 20-page instruction manual. I usually don't comment much further on instruction manuals, yet Softwood's treatment of their documentation deserves special notice. The manual included with Pen Pal is arguably the best work of documentation this reviewer has ever seen for an application program. Although ET's manual is small, it is written in that same clear, concise and organized fashion. Kudos to Softwood for their dedication to solid documentation.

ET can be installed in a variety of ways, depending on your present hardware configuration. If you use a modest setup (e.g., an A500 with 512K and a single disk drive), ET can simply be left in a disk drive while you use it. Users with hard drives and/or extra RAM have a bit more flexibility, as ET works smoothly off hard or RAM disks.

Hard disk installation is a snap: simply drag the ET drawer icon onto your hard disk, and the installation is complete. No need to fiddle with start-up sequences or muck about with assign statements. Once installed on hard disk, ET occupies a little over 400K of disk space.

To start ET, double-click the "ET" icon and you are presented with the "Screen Type" requester. This window allows the user to select one of ET's three operating modes. The options include "Custom (Interlaced)," which opens ET on an attractive, memory hungry high-resolution custom screen; "Custom (Non-Interlaced)," which loads ET in a custom 640 x 200 screen; and the final option, which boots ET into a Workbench window. I've listed the three options in descending order of memory allocation—the interlaced custom screen occupies a tad under 180K RAM while operating, the 640 X 200 custom screen consumes around 145K, and the last option, Workbench, squeezes ET into a frugal 120K.

Your selection of a loading option ultimately boils down to how much RAM you have. Owners who want ET to appear in an attractive, high-resolution custom screen are advised to have a fair amount of free RAM. One final note on operating modes: running under AmigaDOS 2.0 on an Amiga 3000, loading ET as a Workbench window is the best choice. This selection not only consumes the smallest amount of RAM but looks just as attractive running on AmigaDOS 2.0's three-dimensional interface as it does on its own custom, hi-res screen.

and click or simply peruse TDL's pulldown menus. Giving the user three separate ways to control a program is a good idea, and I must applaud Softec on their decision to allow such flexibility in the program.

Perhaps the most important button on this window is the edit button, which shuttles the user off to the actual label creation section of the program. This edit screen displays an on-screen representation of the label the user is creating. The screen is complete with its own bevy of buttons placed at the bottom of the work area, similar in location to the buttons on the main disk labeler screen. Here the user can enter text for labels by using one of four fonts (compressed, expanded, plain, and bold) and three type styles (bold, italic or underlined). Unfortunately, TDL is limited to using the quartet of fonts that Softec provides and is unable to use standard bitmapped Amiga fonts. Several features common to your favorite word processor are also present, such as the ability to justify your text to the left, right, or center of the label.

Strangely, TDL offers no facility for loading in the contents of a diskette for inclusion on a label. While TDL does allow you to grab a disk's volume name to put on your labels, you must list the disk contents manually.

Novices will be glad to hear that a help button resides amidst the throng of buttons at the base of the screen. When selected, this option presents several help screens which identify the buttons on the screen and their functions, while describing some of the user-definable keyboard operations.

Of course, how well TDL outputs labels to your favorite printer is of paramount importance. TDL did a fine job of printing labels to my EpsonQ-compatible Citizen GSX-140 printer, with the output being legible and crisp. TDL does support the standard printer drivers included with Workbench, and also has its own custom printer drivers. Unfortunately, users with printers not supported by TDL will have to purchase a separate printer support disk from Softec.

The second half of the program, the default editor, is accessible by its own icon on Workbench. The default editor allows the user to adjust several parameters of TDL including setting the maximum number of labels, naming the output device, toggling the typestyles and fonts used on or off, performing a test print of your printer, and adjusting the screen colors.

After ET has loaded, the user is presented with the ET window. The upper portion of the window contains the data entry area where words to be found are entered. Words can be entered into ET by manually typing the word into the data entry area, by copying the word from the clipboard, or by double-clicking a word in the lower section of the ET window (cross referencing). Words can also be received from another program via an ARexx port. Yes, ARexx aficionados, ET supports up to 10 ARexx scripts and offers a score of ARexx commands.

Electric Thesaurus is comprehensive enough to satisfy even the most power-hungry wordsmiths.

Once the word has been entered, ET responds by listing the synonyms of the entered word and its definition, in order of frequency in the English language. Part of speech (noun, verb, adjective, etc.) and inflection of the word are also given. As mentioned, the user can also select a cross reference provided in the ET window to pursue another word and its synonyms.

ET contains over 500,000 words and their definitions from *Roget's II Thesaurus,* licensed by SoftWood from the Houghton-Mifflin company. The database appears essentially complete although I did notice a few unusual omissions, such as synonyms for the word "awesome". Softwood states that they've removed terms which could be considered as "offensive in the business or home environment." Does that include current verbiage employed by the bubble-gum and Nintendo set, such as "awesome"? Quibbles aside, the thesaurus is well-stocked with synonyms and definitions.

I tested ET by multitasking it with several word processors including WordPerfect 4.1, Pen Pal 1.3.7 and ProWrite 3.1.1, and ran into no problems whatsoever. I tested the program thoroughly on a wide variety of Amiga hardware, ranging from a bare bones A500 all the way to a 25 MHz A3000 running AmigaDOS 2.0. ET consistently ran without any problems. Softwood has earned a solid reputation through their aggressive bug squashing on Pen Pal, and that same attention to detail shows through on ET. Simply put, ET is a solid, polished piece of software.

On a closing note, I'd like to encourage Amiga developers like SoftWood to offer more products in the add-on market for word processing. While many developers have been aggressively filling gaps in this area, several glaring omissions need to be addressed. The Amiga cries out for gram-

Softec has obviously made an effort to make the program easy to use, though the overall effect of all the buttons, shortcuts and pull-down menus can at times be confusing. I'll concede that the windows do look impressive (especially running under AmigaDOS 2.0), but I'd rather have a cleaner, less jumbled interface to contend with.

The help screens do indeed help, and the manual does provide a tutorial. Unfortunately, the manual doesn't offer much in the way of clarity. Trying to read through TDL's dry documentation is tough going. A few screenshots and diagrams, coupled with a larger type size and more white space, would have done wonders for this reviewer's attention span.

On one hand, TDL lacks a standard AmigaDOS interface, as well as the ability to import graphics to adorn labels. It also cannot print diskette contents on labels, and has a fairly steep learning curve.

On the positive side, Softec does get points for the inclusion of a spiral-bound manual, lack of copy protection, multitasking ease, supply of disk labels, and support for the A3000 and AmigaDOS 2.0. Still, these features don't quite tip the scales in TDL's favor.

I did contact Softec by phone. The individual I spoke with informed me that Softec is in the process of adding several features and enhancements to the program. Bug fixes and some minor program alterations are in the works. However, the two most important improvements will be the ability to load the contents of a diskette (files, directories, file sizes) for inclusion on the printed label, and the capacity to import IFF graphics.

If those features are indeed implemented in a future version of TDL, I'd most likely accord it a more positive recommendation. As it stands, you might want to peruse the label-making options in the public domain before settling on this program. •AC•

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Min. 512K of RAM
Workbench 1.2 or higher

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Portland, OR 97222
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■ ■

mar and style checkers, industry-specific, spell-checking dictionaries (for medical, scientific, architectural, and foreign-language needs), and word processor file conversion software. Softwood has made an admirable effort in filling yet another gap in the Amiga application software arena. •AC•

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AXIOM SOFTWARE'S

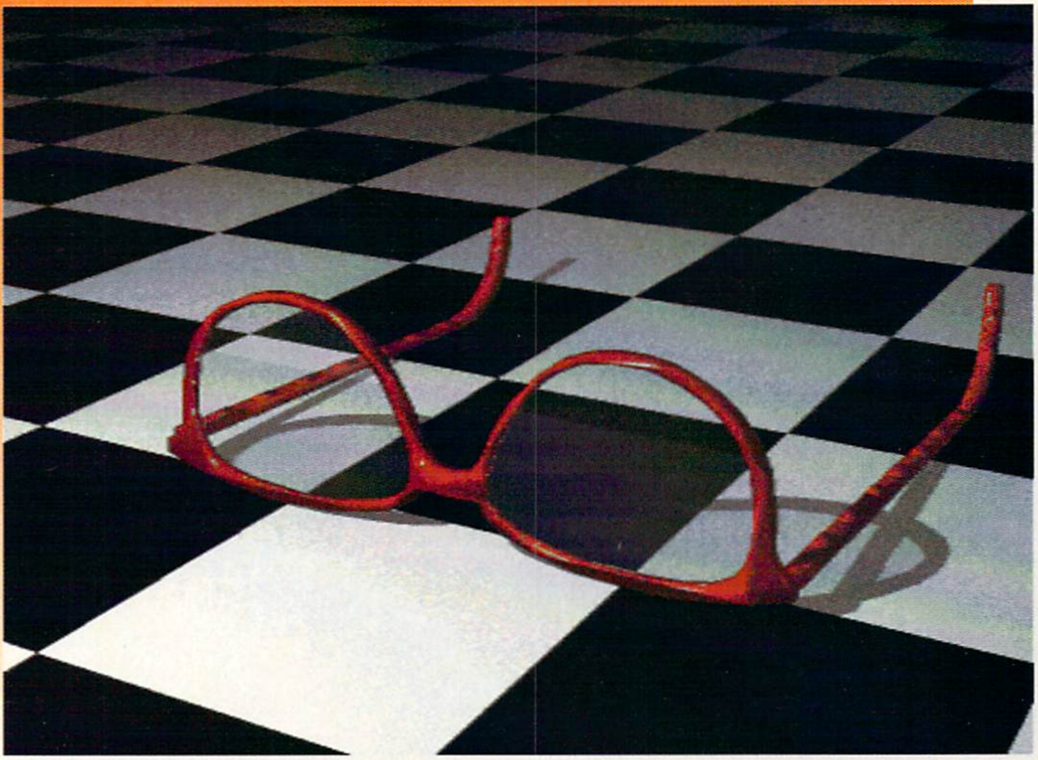
Pixel 3D

by Frank McMahon

IN THE PAST SEVERAL YEARS, 3-D programs have come a long way. With the development of complex texture mapping, various ray-trace modes with shadows and reflections, as well as dozens of options for placement and scaling of objects, rendering results are getting better and more professional looking.

But before the sparkling textures and hi-res 24-bit output, it all starts with one thing—the object. And the blueprint from which it all begins is still the end result of 3-D object creation. The end product of 3-D object creation *is* very much like a blueprint, in that it deals with mostly dots and lines. While the demand for rendered output and a means to create same have both grown tremendously, improvements to our object creation capabilites have occurred at a somewhat more subdued pace. It's certainly easier to do than it once was—Videoscape numerical inputs still make me shudder—but any way you slice it, it still takes some work.

Pixel 3D sets out to make object creation easier. You simply draw your picture in a paint program and import it into Pixel 3D. The program traces it and then creates a three-dimensional object out of it. Though best suited for logos, the program can be used to create almost anything. For example, to create a table object: Draw the tabletop any shape you want, convert it to an object, extrude it for depth, then save it. For



From the program's Demos drawer comes this picture of an object created by Pixel 3D and rendered in Turbo Silver.

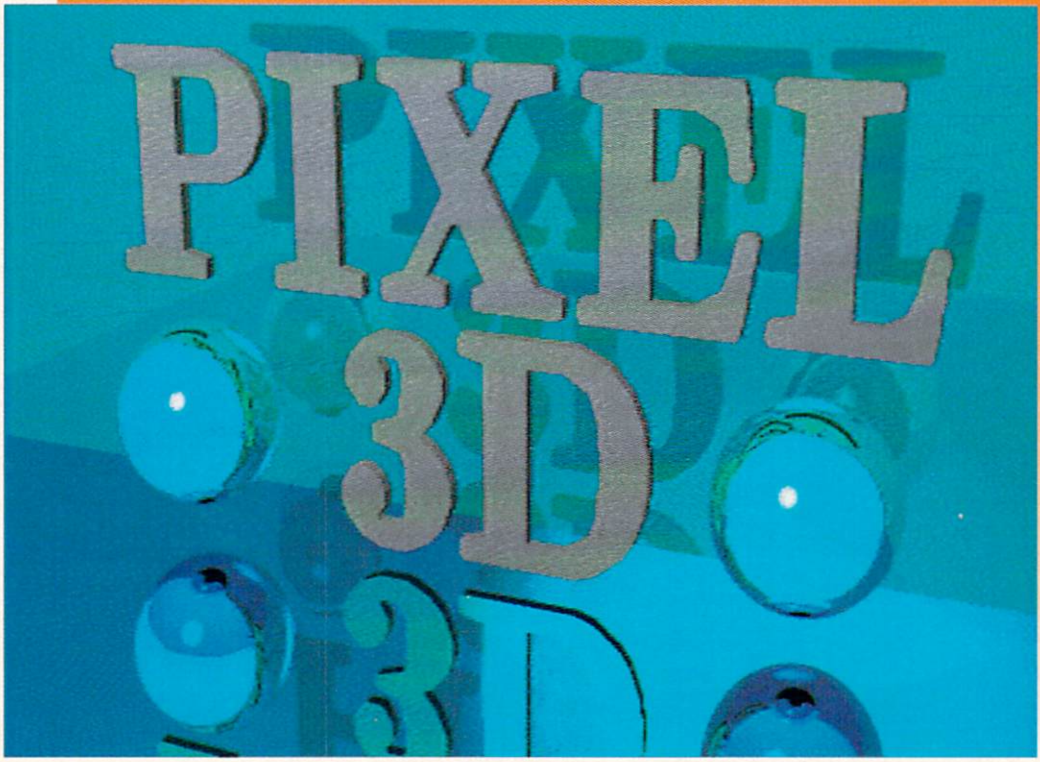
the legs, draw one leg with various contours, convert it to an object, save it, then load it into a 3-D program, use a spin command (lathe) to round it off, then copy it three more times. The possibilities are endless.

> *Though best suited for logos, the program can be used to create almost anything.*

SETTING ASIDE MEMORY

Pixel 3D comes on one disk, is not copy protected, requires only 512K—plus a paint program and 3-D rendering system—and is easily installed on a hard drive. After double clicking on Pixel 3D's *huge* icon, a Memory Allocation Requester pops up. This lets you set aside exactly how much memory you are going to require. I have never liked MARs (new term?) because I feel the program should use only as much memory as it needs. And if the program is unclear about how much memory it needs, how should I know? I usually stick with the default and have yet to run into trouble, though complex designs are required to render complex 3-D objects. However, Pixel 3D is extremely efficient, and all 3-D objects I've created with the program have remained manageable.

After setting the memory, the main interface screen appears. There are no pull-down menus, and everything is controlled via mouse or keyboard input. The top gadget selects the Output Format. There, your object can be created in a form that can be read by Sculpt 3D/4D, Turbo Silver, DXF (AutoCAD), or Videoscape 3D. Color Conversion can be toggled on or off. Toggled on, Pixel 3D uses the color information contained in the bitmap (IFF) you load in, creating separate polygons for each color. Toggled off, the program separates only the background and foreground colors. Creating two-color bitmaps with Color Conversion off is the fastest method. This lowers the object size by cutting down on the amount of vertices/polygons. It's also easy to add color or texture to a mono-color object from within a 3-D rendering system. Color



Text logo created in DeluxePaint III, converted in Pixel 3D, and rendered in Sculpt-Animate 4D in HAM mode.

Conversion for Videoscape objects runs a bit differently. Videoscape works from a fixed palette, so when Color Conversion is off the colors can be entered manually in the Front, Back, and Side Color gadgets. These are the defined Videoscape color codes (regular/glossy/unshaded) and are listed in the manual for reference. When Color Conversion is set to on in Videoscape mode, Pixel 3D goes through the bitmap's palette and then as closely as possible finds a match with one of the Videoscape color codes. For Sculpt/Turbo Silver objects, when the color conversion is set to off, the objects are created with a color of pure white. Upon entering the respective program, you can, of course, change the object to any color you like.

ADDING DEPTH

Line Straightening is a numerical input that allows you to control the staircase edges that sometimes occur. A value of 0 has no effect while the manual lists a value of 10 as a good general-purpose value. The manual provides an excellent discussion of exactly how this process works. It's about time, too, since this is a big factor in determining how closely your object will match your original bitmap image.

Extrusion is also available, which automatically adds depth to your—until now—flat object. The extrusion can be entered numerically by pixel/unit amount and is perfect for thickening up logos. Side Construction can be turned on to create sides during the extrusion process. All objects except Videoscape can be created as Outlined Objects, which are made up of line segments along the edges of your bitmap image. The boundaries are designated by the colored areas of your image when Color Conversion is set to on.

After all your parameters have been set, it's time to choose Begin Conversion. This brings up a requester which allows you to load in the bitmapped image (HAM unavailable) you want to trace. When you specify where you want the object to be saved to, you are presented with another requester. During the conversion process, a Stop gadget allows you to abort conversion. Also there are plenty of example brushes and some beautiful example pictures.

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CONCLUSIONS

The different object output modes reveal a few surprises. First of all, I created an object in Turbo Silver mode and then attempted to load it into Imagine. No go! Surprised? Well, I am not *too* surprised, but I hope a future update will support Imagine, which I am using more and more. *[An Axiom Software spokesperson reports that Pixel 3D does output in Turbo Silver file format 2.0, which was Impulse's current available file format at the time Pixel 3D was developed. Turbo Silver 2.0 output can be loaded into Turbo Silver 3.0 and resaved in file format 3.0, which can then be loaded into Imagine. Mr. McMahon's uses Turbo Silver 1.0*

> ***Why bother with Pixel 3D?***
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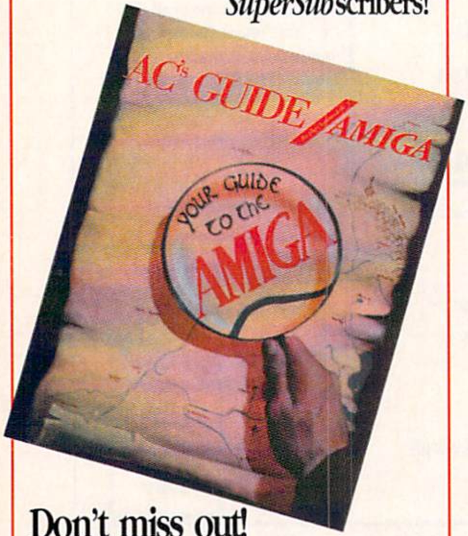

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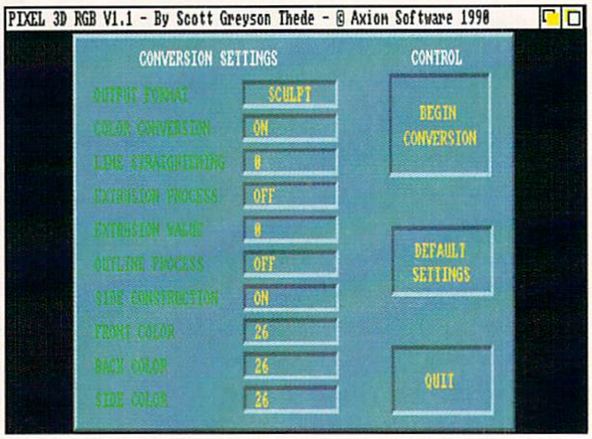
and was not able to save output in a file format compatible with Imagine. Later this summer, Axiom plans to release Polyform 3D, an update to Pixel 3D which promises many additional capabilities, including direct compatibility with Imagine.—Ed.] The other hot 3-D program at the studio is LightWave 3D from the Video Toaster package. Pixel 3D does not support it directly; however, it *does* output Sculpt objects which load into LightWave perfectly. It is a tremendous asset to anyone with LightWave 3D. For you CLI fans—there *are* such people, aren't there?—most commands have CLI counterparts and the program is easily run by typing in a string of commands and options.



PIXEL 3D RGB V1.1 - By Scott Greyson Thede - © Axion Software 1990

CONVERSION SETTINGS
OUTPUT FORMAT SCULPT
COLOR CONVERSION ON
LINE STRAIGHTENING 0
EXTRUSION PROCESS OFF
EXTRUSION VALUE 0
OUTLINE PROCESS OFF
SIDE CONSTRUCTION ON
FRONT COLOR 26
BACK COLOR 26
SIDE COLOR 26

Pixel 3D's main screen; change current settings by pointing and clicking on embossed gadgets adjacent to setting labels.

Given that some 3-D programs include bitmap conversion, and there are other autotrace software packages available, why bother with Pixel 3D? Because it's the best. Period. Pixel 3D is smart *and* fast. It is also completely automatic. Its nearest competitor—and what I've been using until now—is Digiworks 3D, which Pixel 3D knocks out in the first round. Digiworks is not as smart and compensates by including editing options. But editing (that means "correcting", folks) the traced Digiworks object upon entering the program sometimes takes as long as it does to build an object from scratch. With no zoom option, it's pretty difficult—not to mention tedious. 3-D programs with built-in autotracing/bitmap conversion are a mixed bag. Some represent afterthoughts and are not from-the-ground-up, dedicated options. Some simply create a polygon for *every* pixel! Usually halfway through these conversions a "Please Insert Additional Memory Board" requester appears. And with no leeway for line straightening compensation, you take what you get. Pixel 3D, however, is professional and easy to use. With a skim of the brief and succinct 25-page manual, you'll be transforming your IFF images into 3-D objects in under five minutes!

I've always thought a great program is one that gets the job done quickly, provides excellent output, and is usable without first looking at the manual. Pixel 3D hits on all three marks. If object creation is where it all begins, then Pixel 3D is the place to start. •AC•

Pixel 3D
Price: $89.95
Inquiry #224
Axiom Software
1221 East Center Street
Rochester, MN 55904
(507) 289-8677

Please write to Frank McMahon c/o Amazing Computing, P.O. Box 869, Fall River, MA 02722-0869.

ROOMERS

[The statements and projections presented in "Roomers" are rumors in the purest sense. The bits of information are gathered by a third party source from whispers inside the industry. At press time, they remain unconfirmed and are printed for entertainment value only. Accordingly, the staff and associates of Amazing Computing cannot be held responsible for the reports made in this column.]

The Paint Wars have shifted to a new battlefield 24 bits in size. The battle is getting hotter this time because it involves both hardware *and* software. All of a sudden there are many different ways to get 24-bit color from your Amiga, and almost as many ways to paint with that huge palette. This is shaping up to be the mother of all paint wars, involving almost every major company in the Amiga market and a number of new challengers. The main conflict at the moment is between HAM-E and DCTV, which are battling over who's got the best 24-bit solution for under $500. The Bandito has heard more claims and counterclaims than there are colors for a pixel, mostly coming from users who are dedicated to the hardware they bought. Both of these devices have their good and bad points, it seems. Both have paint programs, too, and both are planning frequent and major upgrades in order to get the jump on each other. It's another one of those battles that can only end in victory for the user, says the Bandito.

And don't forget that these are just two of the contestants. NewTek's ToasterPaint is being worked on, too. And M.A.S.T.'s ColorBurst box comes with CBPaint, a powerful paint program and image-processing module. Impulse's 24-bit Firecracker board will be competing here, as will upcoming boards from GVP and Progressive Peripherals.

HAM-E's animation capabilities are one of its selling points, and that's another area that ColorBurst is also touting. So it looks like 24-bit paint and animation are becoming a new standard in the Amiga market. But The Bandito hopes that there *will* be some standards set regarding animation. We have — finally — a 24-bit IFF standard; but, we have no standards for animation at any resolution, or for 3-D objects for that matter. This is something that Commodore should definitely address as soon as possible. Standards promote innovation; it's no coincidence that this explosion of 24-bit capability came *after* Commodore declared a 24-bit standard.

The Bandito thinks that all of this 16-million color capability makes DeluxePaint III, with a mere 32 colors — OK, 64 in extra halfbrite mode — seem rather quaint, like an old-fashioned bicycle. But you have to admit that DeluxePaint still has the best set of basic tools and the most elegant interface. If only we could get those tools and that elegance in a 24-bit paint program... well, perhaps next year. Work on it, would you?

VIDEO NEWS

The hot topic in the Amiga market these days is video, and of course NewTek's Video Toaster is the thing that's causing most of the heat. NewTek is working on a different way of marketing the video peripheral; they're coming out with a Video Toaster already installed in an A2000 with 5 megabytes of memory and a 52 meg hard drive, with software already installed; the whole thing will cost $3995. Look for this box this summer. So what's the point, you say? Well, this box won't say "Amiga" anywhere on it; it will be sold under the Video Toaster name. So it can be sold as a piece of video equipment to go along with any computer, and can be sold even by Apple or IBM dealers. Of course, you'll still be able to play great Amiga games on it.

And M.A.S.T. is shipping ColorBurst, their 24-bit color peripheral, for $599. You get 24-bit color in full overscan at 768 x 580 pixels. Of course, there's an assortment of software for it, including a 24-bit paint program and some special effects like doing fades and creating virtual sprites in 24 bits. But there's even more on the way. Two Amiga hardware heavies are readying their own graphics cards.

Progressive Peripherals is developing a card they call RAMbrandt, based around the TI34020 graphics chip running at 40 MHz. What'll it do? The usual assortment of things: 24-bit color, of course, and some video effects including frame grabbing. The 2 megabyte configuration will retail for around $2500 and should be out by the summertime. It will take up two Amiga slots, so better think

A
B
C
games

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BOX 482 COLD SPRING, MINN 56320

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twice before you buy more cards. On the plus side, according to those who know, RAMbrandt won't need a TBC to do some of its Toaster-like things.

GVP's card should be available sometime soon, and it's got some similarities, being based around the same graphics chip. Of course, it is a 24-bit display card in any Amiga resolution, including severe overscan, bundled with a 24-bit version of MacroPaint from Lake Forest Logic. The card is also a genlock, and can play real-time video in a window on the Workbench, and it's got a built-in flicker-fixer. GVP is trying to line up a bundled version of Caligari, to add 3-D animation capability. Sound like some other video appliance? The GVP graphics card fits in the Zorro/Video slot in the 3000; to use it in a 2000, you put it in a Zorro II slot and run a cable over to the video slot. The plan is to have this wonder card ready by the summertime for around $2000. *[At press time this was not yet confirmed.—Ed.]*

TBC OR NOT TBC

When people buy a Video Toaster, it seems the first thing that it needs is more bread. Specifically, most Toaster owners want to use videotape as an input, and to do that they have to buy a Time Base Corrector (TBC). But TBC's can cost thousands of dollars more than the Toaster itself. What's to do? Ah, the wonders of free enterprise.

You see, the Video Toaster is already affecting the video business. One manufacturer of TBC's reported that over half their phone calls in January were from Video Toaster owners looking for information on TBC's to use. Seems these owners had quickly found that a TBC is necessary to use VCR input with a Toaster. Of course, they were a bit shocked at the price tags on typical TBC's. But now several manufacturers have developed TBC's that fit on a card inside of your Amiga, and they retail for under $1000.

Digital Processing Systems (DPS) (416 754-8090) has developed the Personal TBC, a time base corrector that plugs into an A2000 or an IBM PC ; it uses one of the PC slots in the A2000. If you want more time-base corrected inputs, just plug in more cards. It takes S-VHS, Hi-8 or NTSC inputs, and retails for $995.

The Bandito has heard of another TBC entry from Clear Star International (513-281-3278) with similar specifications. Reportedly, Impulse is working on a dual-channel TBC card for a similar price point, but no word yet on availability.

The big news in entertainment software recently was that Sierra Online and Broderbund had decided to merge in an $88 million dollar deal that would make them either the biggest or the second-biggest home software company; their combined sales would rival Electronic Arts. This merger plan lasted only a couple of weeks, though, before it fell apart. The deal was nixed because top management couldn't agree on how their jobs would be split up. Well, marriage is a tricky thing, says the Bandito, and you shouldn't just rush into it.

Now The Bandito hears some mixed reports about some of the smaller entertainment software companies, those in the $10 million to $20 million a year range. A couple of them are having hard times: layoffs, salary and hiring freezes, cutbacks in other areas. And others with big hit products — like Origin Systems, whose smash hit Wing Commander is coming this summer to the Amiga — are hiring like crazy. The Bandito's advice: remember that this business tends to be cyclical, and those who hire or fire too fast may regret it when things change. *Festina lente*, as the Romans would say: Make haste slowly.

ATARI'S NOT DEAD

Yep, they still keep making product announcements, even though they have developed a reputation for accuracy about equal to Saddam Hussein's. What is Atari claiming that they'll ship this time? Well, they're trying for the third year in a row to launch the Atari TT, which is supposed to replace the Atari ST, and to sell as a UNIX system or a high-powered desktop-publishing workstation. Atari claims that they will offer Unix System V Release 4.0 (same as the Amiga UNIX box) on an Atari TT series and actually ship it this year. And if you believe that, you believe that Iraq won a resounding victory against the Coalition forces.

At the CeBit show in Europe, Atari also showed off a notebook-sized 68000-based ST-compatible laptop that comes with 4MB of RAM and a 20MB hard disk. No floppy drive, though, so you have to use a cable or an external floppy to get software in or out. The notebook uses a joypad as a pointing device instead of a mouse. Not addressed by their presentation was the question of who would buy this thing: all of those Atari ST users who've wanted a portable? Well, once those two guys have bought it, where are they gonna sell the rest?

Atari, trying to remain on the bleeding edge of technology, also showed off the ST Pad. No, this isn't where their computers live, and it's not where the rockets that carry unsold inventory to the Moon take off. The ST Pad is based on their notebook computer, only it uses a touch-screen that can — someday — recognize hand-

25.00 each
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Animated Actions
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WEDDING SET =6 Disks- $49.95
Cool Colorfonts Collection- $40.
Pro-Quality Services Now Include :
Postscript QMS Color Prints-$12.
Postscript IRIS 1800 dpi Color- Call
Postscript Slides-8K-24 Bit -LOW $
Digitized or Video Anims to Disk
Huge Selection of Art for Video/DTP
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Music Backdrops, School Sports
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Circle 195 on Reader Service card.

writing. Yeah, sure, we believe that Atari can do this before anybody else. Uh-huh.

The Bandito believes that Atari is really becoming a laughingstock now; their attempts to come out with new computers in the U.S. have about as much chance as Pat Paulsen does of becoming president, and are about as serious. The Bandito thinks that Atari should stick to videogames.

Or maybe they shouldn't: Atari Games, once a part of Atari, Inc., but now a separate company, just lost an important battle with Nintendo in their long-running lawsuit. You may remember the Bandito told you about this years ago: Atari Games, through its subsidiary Tengen, had cracked Nintendo's copy protection scheme and was making Nintendo-compatible games. Now the case has finally wound its way through the legal system. The judge ruled that Atari "decided to make its cartridges functionally indistinguishable from Nintendo's own games by admittedly copying more than was needed to make a game work on the NES console." As a result, the judge ruled that Atari Games/Tengen must recall all 14 of their games and immediately stop selling and making those games until the patent infringement issues are settled. Of course, this isn't a final judgement. And there's still the Justice Dept. investigation of Nintendo...boy, it's rough in that business.

COMMODORE WATCHERS

Apparently Commodore has finally gotten the word that Amiga prices were a bit high, so they've announced a series of price cuts to try and stimulate sales. The price cuts range from six percent to 26 percent on A2000 and A3000's, and on some Amiga peripherals as well.

The suggested retail price for the A2000 has been reduced 16 percent to $1,599 from $1,899. The A2000HD is down 26 percent from $2,699 to $1,999; the A3000-16/50 has been reduced 10 percent to $2,999 from $3,299, and the A3000-25/50 12 percent to $3,499 from $3,999. Those are definitely good deals; here's hoping the sales will pick up.

And Commodore finally figured out that prices for the Amiga Bridgeboard AT and XT MS-DOS compatible expansion boards were, to put it mildly, out of line. Even a brain-damaged Atari user (now there's a redundant phrase) could have figured out that an 8 MHz AT clone card for $1600 wouldn't sell very well when you can get a complete 25 MHz VGA 80386 DOS system for the same price. The A2088D Amiga XT Bridgeboard has been reduced 29 percent to $499 from $699.95, and the A2286 Amiga AT Bridgeboard is reduced 47 percent from $1,495 to $799. Of course, these prices are still high; halving them again would help sales.

At least Commodore has figured out what the word "service" means, and has done something about it. They've announced CommodoreExpress Gold Service, which provides 24-hour toll-free helpline service and next day on-site repairs to customers for a one-year period. Now there's a real innovation that other computer companies might do well to copy. Be sure to mention it the next time that your friend's Macintosh blows its poor overloaded power supply.

CDTV

CDTV has started to gather some attention; it has even appeared on some nationwide TV shows, although it was poorly demo'ed. It looks like Commodore has finally done something right in their marketing; the have managed to beat CD-I to the market by a substantial margin. The Bandito hears that CD-I is still 18 months away from the market. Gee, hasn't it been 18 months away from the market for the past five years? And now they're saying that the initial CD-I units will cost as much as $3,000! Some consumer pricing.

As you might imagine, this has severely disillusioned many of CD-I's once staunch backers. And Commodore is not letting this opportunity go to waste. The Bandito has learned that people at the very top of Commodore are negotiating with several large Japanese firms in an effort to license CDTV to them for manufacturing. These are the same Japanese electronics giants that are part of the CD-I consortium. What does this mean? It means that by next year we may well see CDTV players from a variety of manufacturers, just like VCRs come from a variety of manufacturers. This will substantially increase the size of the market, and may well establish CDTV as a standard for interactive multimedia consumer hardware. Software developers are crossing their corporate fingers and praying for this to happen. Developers would love to create cool CDTV titles and actually make money at it, too.

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AMIEXPO/WOA REPORT

Once again, we have the battle between AmiExpo and World of Amiga. The Bandito wishes that these two groups would stop feuding; it's hurting the Amiga community. Smaller companies can't afford to go to both shows, and neither can the consumer. Why don't these competing promoters join forces and put on one big show? It would save a lot of money in advertising, and they'd certainly get more people to show up. Otherwise, one of the promoters is going to lose big one of these days. A pox on both their houses if they can't figure this out.

Anyway, The Bandito's impression of these shows is that video is the buzzword for the Amiga these days. Everywhere you look in the dealer room, you see hardware and software for video. And 24-bit color has arrived, despite Commodore's inability to bring the Lowell board to the market; the IFF standard was all that was needed. Interestingly, the emphasis on 24-bit color in the Amiga market is its application to video, with some minor interest in desktop publishing applications. With the Macintosh market, it's just the opposite. And high quality sound has arrived for the Amiga, as the Bandito told you about before.

So the Amiga is finally settling in as the video computer, and in its new disguise as CDTV may well conquer the home market. The Bandito's vision is that the A500 will gradually fade away over time, as CDTV becomes less and less expensive and the software for it becomes better and better. Don't mourn the passing of the A500; it was a necessary evolutionary step. CDTV does everything the A500 does, and more. That's where the future lies... •AC•

Writing It

Here's a simple way to create "marble" with your Amiga...

by Brandon Nelson

A SHORT WHILE AGO, a friend and I were discussing painting techniques and the vast combinations of features in DeluxePaint III that enable a user to create unlimited special effects. When I suggested how nice it would be to make a marble texture, he challenged me to attempt the impossible. The fact that he had little confidence it could be done at all was enough to encourage me to try.

With a little experimentation, I came up with the following technique, which produces a very pleasing marble texture. This article assumes a working knowledge of DPaint III, but I will try to explain each step thoroughly.

Any resolution can be used, but I recommend 320 by 400 in 32 colors. The next step is to set up the color palette. The only stipulation in selecting the main color of the marble is that one or two of

This is a cycle range for a peachy-orange marble texture look.

	R	G	B
Color 2:	15	15	15
Color 12:	15	10	5
Color 22:	6	4	2

In Stone

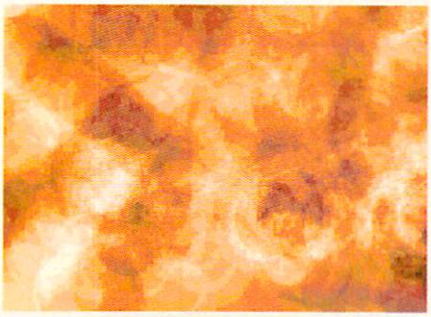
the red, green and blue selectors be set to maximum. Set up a cycle range from white to the main color to the main color darkened. Make sure all the other cycle ranges are cleared, or at least that they don't overlap the marble color range. For a peachy-orange look, set up the colors in the palette and spread between each color, color 2 being the second color in the palette (see chart on opposite page). The colors can be changed later as long as the general layout of white, medium, dark stays the same.

Next, draw a solid rectangle with the main color. Click the right mouse button on the circular brush in the toolbox and select a brush about an inch wide. With the dotted freehand tool and the "Shade" painting mode (F5), scribble randomly on the "slab" by alternating with the left and right mouse buttons. The result should be something like Sample #2 in the first screen shot. Try to avoid large patches of the colors at the extremes of the range. Note: Whenever using the "Shade" mode, be certain that the current drawing color is one within the marble-color range; otherwise, colors outside the range may affect the picture.

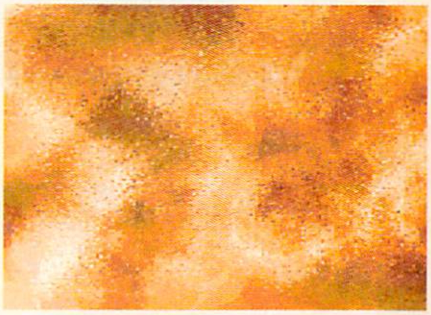
To give a smoother appearance, click the right mouse button on the

→

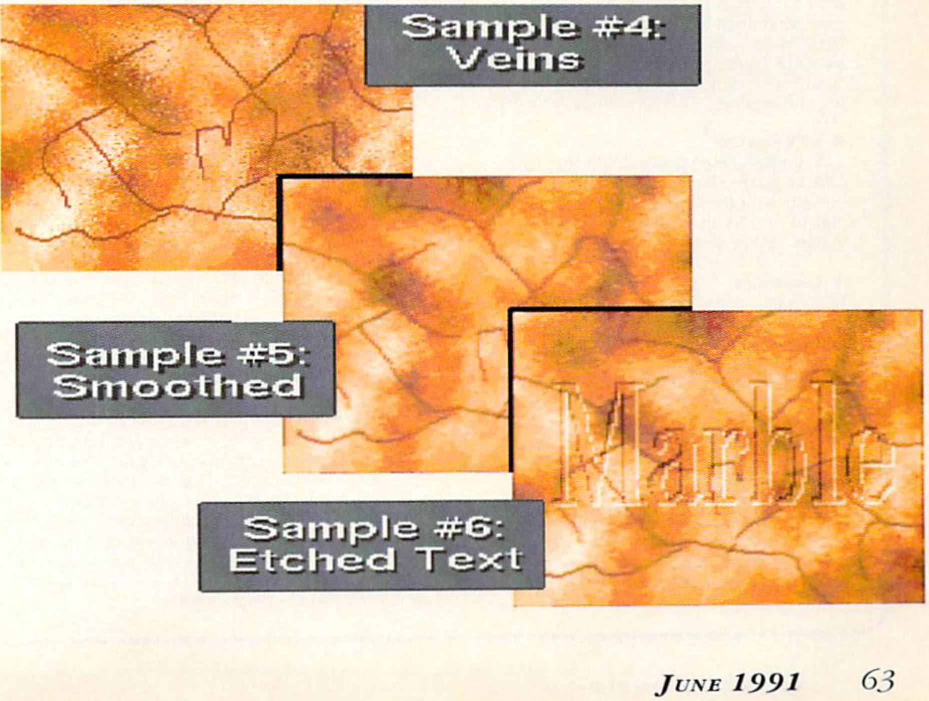
Sample #1: Colour Spread



Sample #2: Shaded



Sample #3: Smeared



Sample #4: Veins

Sample #5: Smoothed

Sample #6: Etched Text

CDTV: THE FIRST TITLES

(continued from page 49)

◆ Gardenfax: Garden Plants
Garden Plants is an easy, fun, and informative way to select and care for beautiful plants in your garden. $49.95 *CDTV Publishing*

◆ Gardenfax: Indoor Plants
Indoor Plants takes the guesswork out of choosing and caring for houseplants. $49.95 *CDTV Publishing*

◆ Gardenfax: Trees, Shrubs, Roses & Conifers
Trees, Shrubs, Roses & Conifers is an interactive informaion program designed to answer the questions of all gardeners about their horticultural plants. $49.95 *CDTV Publishing*

◆ Heather Hits Her First Home Run
The bases are loaded, her friend Jeffrey is on third, and everyone is calling for a home run as she steps up to bat. Heather Hits Her First Home Run is a story of how children feel in life's crucial moments. This book shows children the value of perseverance and team spirit. $44.95 *Discis Knowledge Research*

◆ Horse Racing
Horse Racing brings all the on-track excitement and strategy of real-life racing into your own home. Bet on the favorites to Win, Place, or Show. Up to four players may compete. Detailed past performances of the last 10 race results for every horse at the track. $49.95 *Context Systems, Inc.*

◆ Indoor Sports
Four high-quality, challenging games will keep you entertained long after other games have been retired from competition. Get the ball rolling with Bowling. Darts won't leave you bored. Get a rush from Air Hockey. Finish off with a generous serving of Ping Pong. $49.95 *Context Systems, Inc.*

◆ LTV English
LTV English helps people learn English as a second language. It allows the user to familiarize himself with the English and American accents, and to rapidly improve his mastery of the language. $49.95 *Jeriko*

◆ Lemmings
Lemmings establishes a brand new category of game for the Amiga. Hordes of tiny characters that you have to guide through many levels of obstacles and adventures building bridges, digging tunnels, climbing mountains, parachuting to safety. Each level requires you to construct increasingly complex routes to save as many Lemmings as you can. *Psygnosis Limited*

◆ Many Roads To Murder
Many Roads To Murder can be a disappearance or robbery. Which one depends upon your first choice of plot lines. Your second choice determines the next plot twist. As the title suggests, there are many roads to choose from. Each one challenges you to solve an excitingly different mystery adventure. $39.95 *CDTV Publishing*

◆ Mickey's 123's
Mickey Mouse introduces preschool children to numbers and counting. Children learn at their own pace by exploration. Four separate locations to visit with Mickey–post office, grocery store, toy factory, and birthday party. *Walt Disney Computer Software, Inc.*

◆ Mind Run
Mind Run consists of a set of exercises to test your intellectual aptitudes and to use for evaluation and personal development. You can control the level of difficulty for each type of test. This graphical challenge will engage and entertain you for many hours. $44.95 *CDTV Publishing*

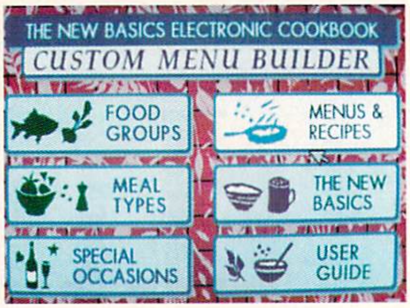
◆ Moving Gives Me A Stomach Ache
Moving is not easy for anyone, but for a little boy it is especially hard. This warm, sensitive story explores children's feelings about moving and shows them that it is not so bad after all. This story is a must for any child facing a move, whether it is across the country or around the block. $44.95 *Discis Knowledge Research*

◆ Mud Puddle
Keeping clean and tidy is a difficult job for any young child–especially when a mud puddle is out to get you. Jule Ann tries to escape from the mud puddle that is chasing her, but she just can't get away. She has to find a way to outsmart the puddle. $49.95 *Discis Knowledge Research*

◆ Murder Anyone?
Murder, Anyone? challenges you to discover who killed Derrick Reardon. Each of the 16 stories has a unique, puzzling solution that will test your sleuthing skills. Clues are presented as a series of full color images with a dramatic audio track. $39.95 *CDTV Publishing*

◆ Music Maker
Anybody will be able to play music in minutes using the unique features of Music Maker. Choose one of the 17 song tracks, select from over 40 instruments and play along. The CD quality audio tracks are accompanied by changing graphics. $49.95 *CDTV Publishing*

◆ My Paint
My Paint is an easy-to-use, educator-approved and classroom-tested paint program designed especially for children. Features include colorful, animated symbols for all tools, a complete 'coloring book' of over 100 pictures, sounds which accompany each picture, multiple brush sizes, special 'surprise' pictures, special effects, color cycling, and more. $39.95 *Saddleback Graphics, Distibuted by Centaur Software*



◆ Ninja High School
Ninja High School is a tongue-in-cheek comic book on a CD disc. Hundreds of pages, hours of fun, and much better looking than those silly turtles. *Wright Enterprises*

◆ North Polar Expedition
North Polar Expedition is an exciting multi-role-playing adventure disc for groups of five to ten. In a race against time before the ice-pack breaks up, the group members take on the roles of leader, navigator, pilot, and so on, and must make the right decision to succeed in their quest. $49.95 *Virgin Mastertronic International*

◆ Our House
Our House offers youngsters a fascinating window into a typical American home–their own–by allowing them to explore how everyday objects in each room are actually used, and to discover what real life was like in generations gone by. Our House offers discriminating parents a captivating and educational alternative to 'Nintendo style' entertainment for children. $49.95 *Context Systems, Inc.*

◆ Pro Tennis Tour II by UBI Soft
Pro Tennis Tour II offers more options than the average player encounters in the real world. This simulation game includes training programs where you can choose from a variety of opponents–male and female–various court surfaces, personal skill levels including strengths and weaknesses, and singles and doubles, or even 'dirty mode' triples. The on-screen scoring display, realistic sound effects, and two-player option give Pro Tennis Tour II the look and feel of an actual tennis game. $49.95 *Electronic Arts*

◆ Psycho Killer
Psycho Killer is an interactive TV experience. High quality audio and digitized images create total reality. The plot and game are interwoven. Confront Psycho Killer, survive, rescue his potential victim, and escape. The story varies based on how you play. $49.95 *On-Line*

◆ Scary Poems for Rotten Kids
Whether you are frightened by goblins or Gerbelgeks, fog phantoms, or even the dreaded pocket monster, you'll find lots of chuckles and chills in Scary Poems for Rotten Kids. Explanations of every word and picture in the text are available in English and in Spanish. $59.95 *Discis Knowledge Research*

◆ Shadow of the Beast I
An adventure game that takes the player through 13 levels and 350 screens of multi-dimensional, parallax scrolling and other graphics and audio special effects implemented for the first time on the Amiga. If you do manage to survive, don't worry, Shadow of the Beast II, the sequel, is waiting to challenge you even more. $39.99 *Psygnosis Limited*

CDTV: THE FIRST TITLES

◆ **Shadow of the Beast II**
Shadow of the Beast II features a new cast of sinister, intelligent opponents, arcade quality animated sprites, diabolically clever hidden traps and puzzles to solve, multiple inventory control, real time interaction with intelligent creatures, rich new sound effects and speech. *Psygnosis Limited*

◆ **Sherlock Holmes Consulting Detective**
Capture the mystery and excitement of Holmes' London in this challenging and informative game. You, the player, will match your deductive abilities against the master sleuth himself, Sherlock Holmes. You are presented with a mystery to solve, and it is then up to you to trace the threads of evidence through the byways and mansions of 19th century London. $69.95 *Icom Simulations*

◆ **SimCity**
SimCity puts you in charge as both the mayor and the city planner of a dynamic real-time urban development simulation. Build houses, stores, factories, roads, football stadiums, airports, and parks. With three different time periods, your city will evolve through time from the Wild West to Future U.S.A. $49.95 *Maxis*

◆ **Snoopy: The Case of the Missing Blanket**
Snoopy: The Case of the Missing Blanket is a colorful, fully interactive cartoon which is a challenge and delight for all Snoopy fans. Snoopy plays detective in this animated cartoon adventure, facing the task of finding where Linus lost his blanket. Snoopy must find the missing blanket and then return it to Linus who is most upset at misplacing it. $49.95 *The Edge Interactive Media*

◆ **Spirit of Excalibur**
Spirit of Excalibur is an epic quest to restore the grandeur and glory of Arthur's Roundtable. You explore over 100 beautifully-illustrated unique locations and listen to the conversations of the colorful cast of characters in this rich adventure game. $59.95 *Virgin Mastertronic International*

◆ **The American Heritage Illustrated Encyclopedic Dictionary**
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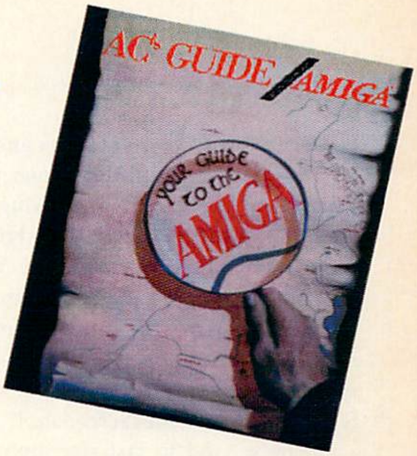

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Turn to page 95 for a list of CDTV developers and upcoming CDTV products.

five-point brush in the toolbox and select the largest multi-dot brush possible. Turn the stencil on, locking the background color, so that the edges of the slab stay clean in the next step. With the dotted freehand tool and "Smear" mode (F4), go over the entire rectangle, slightly blending everything in small steps. The picture should now look like Sample #3 in the first screenshot.

The second to last step involves drawing veins in the marble, and may require some experimentation. Before starting, turn off the stencil, pick up the slab as a brush and stamp down several copies on the alternate screen (press 'j'). If you have been working in 320 by 400 mode, you will need to create a brush that is the equivalent of a single pixel in 320 by 200 mode, to keep the horizontal lines as thick as the vertical lines. Turn the magnifier on, make sure "Color" mode is on (F2), and select a single pixel brush (press '.'). Stamp it down twice, creating a small box that is one pixel wide and two pixels high. Pick this up as a brush and turn off the magnifier. Now, turn the stencil back on and begin drawing the veins with the solid freehand tool. Draw the veins in a color that is relatively dark, since it will be smoothed later and will not be noticeable if it is too light. Draw the lines with rather sharp angles, and with many branches, as in Sample #4 of the second screenshot.

Marble in 3D.

The last step is to smooth the whole slab to make it look more realistic. Pick up the entire slab as a brush, select "Smooth" mode (F8), and stamp it back down directly over itself. After a few seconds, the program will have finished smoothing. It may still be necessary to take a small circular brush and smooth the veins further.

THERE ARE MANY USEFUL APPLICATIONS FOR MARBLE TEXTURE IN VIDEO AND ART.

There are many useful applications for marble texture in graphic and video art. In Sample #6, I gave the impression of text being "etched" into the marble. This was achieved by typing a word on the spare screen and picking it up as a brush (with the left mouse button—thereby leaving a copy on the screen), then moving down and right one pixel, and clicking the right mouse button. Repeat this in another spot of the spare screen; stamp it down again and this time move up and left one pixel before clicking the right mouse button. Pick up one of these "shadows" and using the "Shade" drawing mode, click the left mouse button four or five times over the marble. Next, pick up the other shadow and line it up with the existing shadow so that the word is easily legible. Stamp it down four or five times using the right mouse button.

In the third screenshot, I took a picture of some pink marble, and using the public domain program, BezSurf, I created a three-dimensional object, and the program wrapped the picture around it. There are many other ways to use marble texture. Try using the perspective mode in DPaint to create three dimensional blocks, or importing it into a HAM paint program to add highlights.

Marbling can be used for more down-to-earth tasks, too. Currently I'm hoping to design tombstone façades for a local graveyard promotion. It may be, however, that you will be able to come up with different applications.

•AC•

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C NOTES

From the C Group

by Stephen Kemp

Not long ago I had to write a few utility programs but, unlike times in the past, I did not have old source from which to draw. Starting from scratch, I eventually developed, through experimentation, a new skeletal program from which to jump start my utilities.

My main objective was to create a simple model that would make it easy to add features to these programs in future revisions. You see, experience has taught me that no matter how well I plan, just when I think I've finished someone will dream up a new option that simply *must* be supported. Usually, I "finish" 3 or 4 times before I'm finished.

Most programs that support a series of options do so in three basic ways (individually and in combination). First, the program might prompt the user for the options. This is slow and tedious if the program is used frequently. Next, the program might read a configuration file. This is a good method if the objective of the program doesn't change often (e.g., a link response file), but tedious if the reverse is true. Finally, the program can accept the options from the command line. This is probably the most flexible and most traditional approach for simple utility programs.

Before developing the new model, I examined the traditional method. The program would have to examine each command line and compare it to a list of possible options via a series of "if" statements or a large case.

```
    if (argument[0] == '/') { /* is an option switch */
  switch(toupper(argument[1]){ /* which option selected */
  case 'S':                    /* subs selected */
      sflag = TRUE;            /* turn on flag */
      break;
  case 'V':                    /* Verify flag */
      vflag = TRUE;            /* turn on flag */
      break;
  case '?':                    /* Help flag */
      help = TRUE;             /* turn on flag */
      break;
  default:
                  error = TRUE;
      break;
  }
}
```

After examining the options (or during the examination), I might print a short message to the console to confirm the user's selection. In the event that an option was entered incorrectly or an improper option was specified, the program tries to offer help by describing all the possible options.

During my experimentation, I began to realize that each option was set, confirmed, and tested in essentially the same manner. Therefore, each time a new option was added, lines of code had to be duplicated. Additionally, I recognized that it was easy to miss a step when adding a new feature, like the

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confirmation or the help text, without realizing it. Taking all of these things into account, I stumbled across my new model.

Listing One contains examples of the definitions and functions that comprise the command line parsing for the new shell. At the heart of the new model is the data structure named CMD_SWITCHES, defined as follows:

```
typedef struct {
    char swtch;                              /*switch letter*/
    char active;                             /*active true/false*/
    char *name;                              /*name of command*/
    char *help;                              /*help information*/
    char *data;                              /*data pointer if given*/
}CMD_SWITCHES;
```

This structure offers the most common requirements of command line switches used in my programs. It defines the character that specifies the option (I used #defines in the source for clarity); the flag that indicates whether the user selected it; the confirmation name (or message) for the option; the help text describing the option; and finally, the structure defines a data pointer that can point at an associated argument. An example initialization of the structure might look like this.

```
{'S', 0, "Subdirectories", "included in file search", NULL};
```

where 'S' represents the character. Active is set to FALSE (0). The confirmation message is a character string—in this example, "Subdirectories". The help text is designed to continue the confirmation message should it be requested. Finally, the data pointer is set to NULL so we can tell if it has been assigned.

The functions in the program were developed as a series of building blocks. At the lowest level, functions activate options and assign pointers if necessary. Likewise, similar functions return the active status of the options, data pointers, or command line arguments.

At the next level, there are two functions. The first loops through the arguments, tests for the switches and sets the options when specified. The second function is the help function used to display the confirmation messages and the help text if requested.

The nice thing about this model is that it is simple to add a new option. Once a new option structure is added into the list, all the command line parsing is handled automatically. This lets you jump right into developing the code that the option specifies.

I won't try to describe all the code. Rather, I'll leave that to your exploration. Hopefully, the comments will help you understand my thought process. Do a few experiments of your own; maybe you'll develop some improvements.

Please write to Stephen Kemp c/o Amazing Computing, P.O. Box 869, Fall River, MA 02722-0869.

Listing One: Argument.c

```
/*————————————              ————————————*/
/*  ARGUMENTS.C - Library fucntions that use a data driven model to      */
/*               support command line switches and parameters            */
/*  Author: Stephen Kemp                                                 */
/*                                                                       */
/*  Each switch that the program allows must be specified in a command  */
/*  list defined by the structure type CMD_SWITCHES.                     */
/*                                                                       */
/*  User specify command switches by preceeding a switch character with a*/
/*  slash ( / ) or hyphen ( - ).                                         */
/*                                                                       */
/*  Non-swithed arguments are simply counted and returned from the       */
/*  command line, thereby supporting variable arguments.                 */
/*————————————              ————————————*/
#include <stdio.h>
#include <string.h>
#include <ctype.h>
```

```
#define TRUE    1
#define FALSE   0
#define OK      0
#define ERR    -1

/*————————————            ————————————*/
/*                                                                      */
/* The following structure is the heart of this command line parser.   */
/* An array of this structure type will contain all the switches that  */
/* the program expects to receive.                                      */
/*                                                                      */
/* To provide user information of active switches the structure provides */
/* for both a name of the command switch and an area to specify help.  */
/*                                                                      */
/* This model assumes that the first element will be the Help switch that*/
/* specifies the program name and version;  and may contain a short    */
/* description.                                                         */
/*                                                                      */
/* The last element in the list must be a filled with zeros.           */
/*————————————            ————————————*/

typedef struct {
    char swtch;                              /*switch letter*/
    char active;                             /*active true/false*/
    char *name;                              /*name of command*/
    char *help;                              /*help information*/
    char *data;                              /*data pointer if given*/
}CMD_SWITCHES;

/*————————————            ————————————*/
#define HELP   '?'                           /*character for help*/
#define SUBS   'S'                           /*character for subs*/
#define VERIFY 'V'                           /*character for verify*/
/*————————————            ————————————*/
/* The following is a sample stub of switches that may be useful to the */
/* program being developed.                                             */
/* The syntax follows the CMD_SWITCHES structure defined above.         */
/*————————————            ————————————*/

CMD_SWITCHES SW[] = {

{HELP  , 0, "PROGRAM", "filePattern [filePattern...]\nVersion 1.0\n",NULL},
{SUBS  , 0, "Subdirectories", "included in file search", NULL},
{VERIFY, 0, "Verify", "before changes", NULL},
{ 0    , 0, NULL, NULL, NULL},                /*last element must be null*/
                  };

/*————————————            ————————————*/
/*  GET_ARG: This function searches an argument array for the specified  */
/*  occurrence of a command line parameter which was not specified by a  */
/*  switch (- or /) indicator.                                            */
/*  Returns: The associated data pointer if found.                        */
/*           NULL indicates no argument data was specified.               */
/*————————————            ————————————*/
char * get_arg(int Count, char *Argv[], unsigned Argc)
{
    int i,x;

    for (x=i=1; i < Argc; ++i) {              /*look through all arguments*/
        if (Argv[i][0] == '/' || Argv[i][0] == '-')/* No switch command*/
            continue;
        if (x == Count) return(Argv[i]);      /*found the specified count*/
        x++;                                       /*increment counter*/
    }
    return(NULL);                                  /*No Argument found*/
}

/*————————————            ————————————*/
/*  SET_SWITCH: This function activates the specified switch in the      */
/*  command list and assigns the data pointer passed.                    */
/*                                                                        */
/*  Returns: TRUE if the character was found in the command list         */
/*           FALSE if not found in the list                               */
/*————————————            ————————————*/
int set_switch(char Chr, char *Pointer, CMD_SWITCHES Cmds[])
{
    int i;

    Chr = toupper(Chr);                       /*Case insensitive switches*/

    for(i = 0; Cmds[i].swtch != 0; i++){      /*Loop through all switched*/
        if (Cmds[i].swtch == Chr){            /*Is this a match*/
            Cmds[i].active = TRUE;            /*Then activate the switch*/
            Cmds[i].data = Pointer;           /*Associate the data pointer*/
            return(TRUE);                     /*return found*/
        }
    }
    return(FALSE);                            /*Not found in the list*/
}

/*————————————            ————————————*/
/*  SWITCH_SET: This function returns the setting of the specified switch*/
/*  from the command list.                                               */
/*                                                                        */
/*  Returns: TRUE indicates the switch is active                         */
/*           FALSE indicates not active or not found in the list         */
/*————————————            ————————————*/
int switch_set(char Chr, CMD_SWITCHES Cmds[])
{
    int i;

    Chr = toupper(Chr);                       /*Case insensitive switches*/

    for(i = 0; Cmds[i].swtch != 0; i++){      /*Look through all commands*/
        if (Cmds[i].swtch == Chr)             /*is this a match*/
            return((int)Cmds[i].active);      /*return the active status*/
    }
    return(FALSE);                            /*Not found in the list*/
}

/*————————————            ————————————*/
```

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```
/*  SWITCH_DATA: This function returns the data pointer of the specified */
/*  switch from the command list.                                        */
/*                                                                       */
/*  Returns: None NULL indicates the data pointer of argument            */
/*           NULL indicates if no data pointer or not found in the list  */
/*——————————          ——————————*/
char *switch_data(char Chr, CMD_SWITCHES Cmds[])
{
    int i;

    Chr = toupper(Chr);                          /*Case insensitive switches*/

    for(i = 0; Cmds[i].swtch != 0; i++){         /*Look through all commands*/
        if (Cmds[i].swtch == Chr){               /*is this a match*/
            if (Cmds[i].active)                  /*if active then*/
                return(Cmds[i].data);            /*return the data pointer*/
            else                                 /*otherwise*/
                break;                           /*stop looking*/
        }
    }
    return(NULL);                                /*Not found or not set*/
}

/*——————————          ——————————*/
/* CHECK_SWITCHES: This function examines the command line arguments and */
/* assigns the appropriate switches from the Command list specified.     */
/*                                                                       */
/* Returns: OK (or FALSE) if no errors found.                            */
/*          TRUE if errors found.                                        */
/*——————————          ——————————*/
int check_switches(unsigned Argc, char *Argv[], CMD_SWITCHES Cmds[])
{
    int i;
    char *chr;
    char swtch;
    int errors;

    errors = FALSE;                              /*no errors yet*/
    if (Argc > 1){                               /*if command line arguments*/
        for(i = 1;i < Argc; i++){                /*look through list*/
            chr = Argv[i];                       /*Get opening character*/
            if (*chr == '-' || *chr == '/'){ /*is this a switch indicator*/
                chr++;                           /*get past switch indicator*/
                swtch = *chr;                    /*this is the swtch*/
                chr++;                           /*get to data*/
                if (*chr == '=') chr++;          /*get off equal*/
                if (*chr == '\0' || *chr == ' ') chr = NULL;
                if (set_switch(swtch, chr, Cmds) == FALSE){;/*invalid */
                    errors = TRUE;               /*erros was found*/
                }
            }
        }
    }
    return(errors);                              /*return error state*/
}

/*——————————          ——————————*/
/* HELP_COMMAND: Outputs the command switches and optionally displays the*/
/*  associated descriptions with the commands.                           */
/*                                                                       */
/* The CMD_SWITCHES structure assumes that the first element contains the*/
/*  program name and associated version information.                     */
/*——————————          ——————————*/
void help_command(CMD_SWITCHES Cmds[], int All)
{
    int i;

    if (All){                                    /*if display all information*/
        printf("%s %s\n",SW[0].name,SW[0].help);/*display program name */
        printf("  /%c  This help info\n",HELP);/*and the help info*/
    }

    for(i = 1;Cmds[i].swtch != 0; i++){          /*for the remainder */
        if (All){                                /*if All then print*/
            printf("  /%c  ",Cmds[i].swtch);     /*the switch letter*/
        }
        if (Cmds[i].active == TRUE || All){      /*Then if active or All*/
            printf("%s %s\n", Cmds[i].name,
        ((All)? Cmds[i].help : ((Cmds[i].data)? Cmds[i].data:"")));
        }
    }
}

/*——————————          ——————————*/
void main(unsigned Argc,char *Argv[])
{
    int i;
    char *argument;

    if (check_switches(Argc, Argv, SW) != OK || /*if error in switches or*/
          get_arg(1, Argv, Argc) == NULL){    /*not enough arguments*/

        set_switch(HELP, NULL, SW);              /*turn on help for user*/
    }
    if (switch_set(HELP, SW) == FALSE){          /*if help is not specified*/
        help_command(SW, FALSE);                 /*show only current settings*/

        for (i=1; i < Argc; ++i) {               /*for each argument*/

            if ((argument = get_arg(i, Argv, Argc)) == NULL) break;/*done*/

/*NOTICE——————————          ——————————*/
/* Program specific code (functions) will replace the following stub    */
/*——————————          ——————————*/
            printf("Argument %d = %s\n", i, argument);/*print    argument*/
/*——————————          ——————————*/
        }
    }else{
        help_command(SW, TRUE);                            /*give all help*/
    }
}
```

•AC•

PRACTICALITIES

Applications for a Shared Library for Matrix Manipulations

BY RANDY FINCH

The first half of this article ("A Shared Library For Matrix Manipulations", December 1990) described how to create Matrix.library, a shared library for performing various matrix manipulations. In this second half, we'll look at several programs that make practical use of the library.

Really Using Matrix.library

The test program is nice for testing Matrix.library for bugs, but we want to put the shared library to good use. I mentioned at the beginning of the first installment that there were several reasons for writing Matrix.library. They included solving simultaneous equations, determining least-squares regression coefficients, and manipulating 2-D and 3-D vectors. This article will concentrate on examples of these problems. Please be aware that, for the sake of brevity, the programs presented do not perform much in the way of error checking.

Simultaneous Equations

Suppose we have the following set of equations:

$$(1)\ 1.3x_1 + 342.7x_2 - 17.7x_3 = 1003.88$$

$$(2)\ -222.17x_1 + 3.0x_2 + 23.6x_3 = -667.05$$

$$(3)\ 1.0x_1 - 17.4x_2 - 15.6x_3 = 3.0$$

We need to know what values of the x_i's are valid for all three equations. In other words, we need to solve the equations simultaneously. The above equations can be written in matrix notation as AX=B where A is a 3 by 3 matrix containing the three coefficients of each equation in its rows, X is a column vector containing the x_i's, and B is a column vector containing the right-hand-side (RHS) constants. This matrix equation can be written as follows:

$$\begin{bmatrix} 1.3 & 342.7 & -17.7 \\ -222.17 & 3.0 & 23.6 \\ 1.0 & -17.4 & -15.6 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 1003.88 \\ -667.05 \\ 3.0 \end{bmatrix}$$

When each side of the equation is multiplied by the inverse of matrix A, A^{-1}, the left-hand side (LHS) of the equation will reduce to the X vector while the RHS will be the solution vector. In other words, $A^{-1}AX=A^{-1}B$ reduces to $X=A^{-1}B$. This is due to the fact that $A^{-1}A$ is equal to the unity matrix (ones in the diagonal from upper-left to lower-right and zeros elsewhere). Thus, the RHS vector after the multiplication will contain the values of the x_i's. Listing One is a program for accomplishing the above operation. Listing Two shows the output of the program. The solution for the X vector is $x_1=2.71$, $x_2=2.76$, and $x_3=-3.10$. Notice that the program multiplies A and X to verify that the result does indeed equal B (the RHS vector).

Least-Squares Regression

Suppose we set up a two-level full factorial experimental design (Ref. 4) for a chemical reaction that we believe is dependent upon temperature and pH. The dependent variable of interest is the percent yield of some compound. Table1 shows the experimental design, which consists of four tests, and the yield results. We want to model the results with the following linear equation:

Table 1: Experimental Design and Results

	Coded Variables		Actual Variables		
Test No.	x_1	x_2	Temp, °C	pH	Yield, %
1	-	-	50	5	40.5
2	+	-	70	5	49.9
3	-	+	50	9	61.8
4	+	+	70	9	78.2

$$\text{yield} = b_0 + b_1\,(\text{temp}) + b_2\,(\text{pH})$$

The data in Table1 can be combined with the equation above and put in matrix notation.

$$\begin{bmatrix} 1 & 50 & 5 \\ 1 & 70 & 5 \\ 1 & 50 & 9 \\ 1 & 70 & 9 \end{bmatrix} \begin{bmatrix} b_0 \\ b_1 \\ b_2 \end{bmatrix} = \begin{bmatrix} 40.5 \\ 49.9 \\ 61.8 \\ 78.2 \end{bmatrix}$$

or DB=Y. Since there are four equations and only three unknowns, the model is overspecified and there is no exact solution for the b_i's. However, it is possible to calculate what values of b_i will result in "predicted" yield values that are closest to the "actual" yield values. This is accomplished by choosing the b_i's such that the sum of the squares of the differences between the four actual and predicted yields is minimized. This is known as least-squares regression analysis. It turns out that the appropriate b_i's can be calculated rather simply using matrices by solving the set of simultaneous equations known as the normal equations. These equations in matrix notation are $D^TDB=D^TY$, where D^T is the transpose of matrix D. D^TD will be a square matrix with three rows and columns and D^TY will be a column vector with three elements. Thus, the normal equations consist of three equations with three unknowns. They can be solved in the same way the simultaneous equations were solved in the previous section. The setup is as follows:

$$(D^TD)B = D^TY$$
$$(D^TD)^{-1}\,(D^TD)B = (D^TD)^{-1}\,D^TY$$
$$B = (D^TD)^{-1}\,D^TY$$

The program in Listing Three performs these calculations. The output of the program is shown in Listing Four. The least-squares regression coefficients were b_0=-24.5, b_1=0.645, and b_2=6.20 resulting in a regression equation of:

$$\text{yield} = -24.5 + 0.645\,(\text{temp}) + 6.20\,(\text{pH})$$

Note the PREDYIELD vector at the end of Listing Four. These are the four predicted yield values at the test conditions of the experimental design. They are different from the actual yield values; however, due to the nature of least-squares regression analysis, there are no other b_i values that will result in a lower sum of squares of the differences in the actual and predicted yields.

Vector Transformation

Matrices can be used for transforming N-dimensional objects. For the sake of brevity, the following example is a 2-D transformation but the same principle can be applied for higher dimensions (Ref. 5).

A rectangle with a width of four and a height of three resides on the X-Y plane such that the coordinates of its four corners are (5,6), (5,9), (9,9), and (9,6). We would like to scale this rectangle by a factor of 1.5 along the X dimension and 2.0 along the Y dimension, and then rotate it 45 degrees about its center point (7.0,7.5). The scaling factors and the rotation cannot be applied directly to the coordinates because this would result in the rectangle being scaled and rotated with respect to the origin rather than the center of the rectangle. Therefore, it is first necessary to translate the rectangle such that the center coincides with the origin, scale it, rotate it, and then translate again so the center of the rectangle is back in its original position. This process is shown graphically in Figure 1.

It turns out that Cartesian coordinates are not convenient for the transformation, but homogeneous coordinates are. Homogeneous coordinates add an extra factor w such that (w*x,w*y,w) is equivalent to (x,y,1) which represents the Cartesian coordinate (x,y). For more detail, see Ref. 5.

The Cartesian coordinates of the four corners of the rectangle can be represented in homogeneous coordinates as (5,6,1), (5,9,1), (9,9,1), and (9,6,1), which are row vectors. To translate, scale, or rotate these corners, the vectors are multiplied by the appropriate transformation matrix. Thus, to carry out the entire transformation illustrated in Figure 1, the following calculations are needed:

$N_i = C_i T_{-c} S R T_c = C_i F$ where:

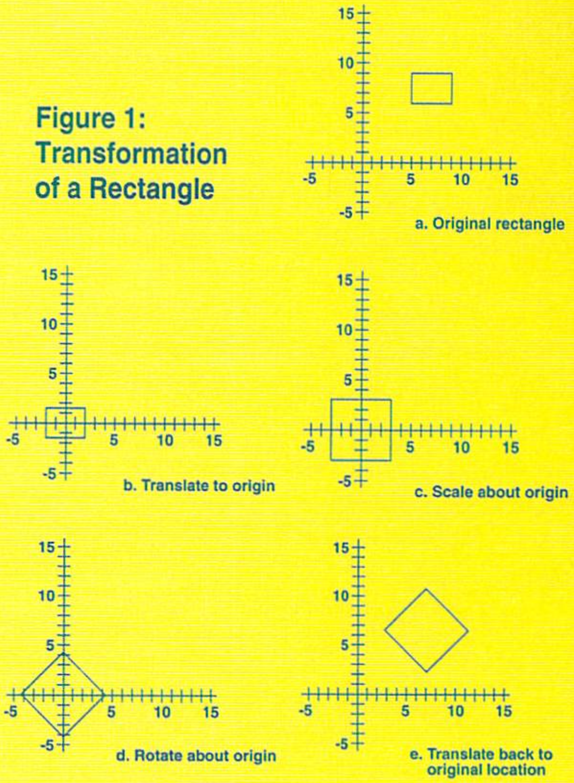
C_i = a corner vector, i=1-4
T_{-c} = the translation matrix that moves the center of the rectangle to the origin
S = the scaling matrix
R = the rotation matrix
T_c = the translation matrix that moves the center of the rectangle back to its original location
F = the complete transformation matrix = $T_{-c} S R T_c$
N_i = a transformed corner vector, i=1-4

Table 2 shows what two-dimensional translation, scaling, and rotation matrices look like. Once all the individual transformation matrices are multiplied together to obtain a complete transformation matrix, the homogeneous corner vectors can each be multiplied by this matrix to obtain the four transformed corner coordinates. Listing Five shows a program that performs all of these calculations. The program's output is in Listing Six. The transformed corner Cartesian coordinates are (7.00,3.26), (2.76,7.50), (7.00,11.74), and (11.24,7.50). As you can see, these coordinates match those in Figure 1e.

Conclusion

There you have it—a shared library for performing matrix calculations and the beginnings of how to really use the library. Of course, there are many other tasks that can make good use of Matrix.library, as there are many other functions that can be added to the library itself. Feel free to add whatever you wish. If you make any substantial enhancements, please let me know about them. *[Program listings begin on the following page.]*

Figure 1: Transformation of a Rectangle



a. Original rectangle

b. Translate to origin

c. Scale about origin

d. Rotate about origin

e. Translate back to original location

TABLE 2: Two-Dimensional Transformation Matrices

Translation Matrix:

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ T_x & T_y & 1 \end{bmatrix}$$

T_x = amount to translate in X dimension
T_y = amount to translate in Y dimension

Scaling Matrix:

$$\begin{bmatrix} S_x & 0 & 0 \\ 0 & S_y & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

S_x = scaling factor in X dimension
S_y = scaling factor in Y dimension

Rotation Matrix:

$$\begin{bmatrix} \cos\o & \sin\o & 0 \\ -\sin\o & \cos\o & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$\o$ = angle to rotate (counter-clockwise)

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References

1. Commodore-Amiga, Inc.; *Amiga ROM Kernel Reference Manual: Includes and Autodocs*; Addison-Wesley Publishing, 1989. 2. Baez, J.; "Creating Shared Libraries"; *Amazing Computing For The Commodore Amiga*; PiM Publications, April 1989. 3. Press, W. H., Flannery, B. P., Teukolsky, S. A., and Vetterling, W. T.; *Numerical Recipes in C: The Art of Scientific Computing*; Cambridge University Press, 1988. 4. Box, G.E.P., Hunter, W.G., and Hunter, J.S.; *Statistics for Experimenters: An Introduction to Design, Data Analysis, and Model Building*; John Wiley & Sons, 1978. 5. Pokorny, C. K. and Gerald, C. F.; *Computer Graphics: The Principles Behind the Art and Science*; Franklin, Beedle, and Associates, 1989.

Listing One: Simultaneous Equations Program

```
/*
   SimEqs.c

   Here is a test program that solves three simultaneous
   equations using Matrix.library.

   This code is FREELY DISTRIBUTABLE but NOT PUBLIC DOMAIN
   (written by Randy Finch)
*/

#include "Test.h"

/*———————
      main()
———————*/

void main(argc,argv)
   int argc;
   char **argv;
{
   DOUBLE *x;          /* Solution vector */
   DOUBLE *b;          /* RHS vector */
   DOUBLE *btest;      /* AX test vector */
   DOUBLE **a;         /* Coefficient matrix */
   DOUBLE **ainv;      /* Inverse of a */

   puts("\nOpening Matrix.library\n");
   Matrix = OpenLibrary("Matrix.library",1);
   printf("\nMatrix = %x\n",Matrix);

   if(!Matrix) {
      printf("\nCould not open Matrix.library!\n");
      exit(0);
   }

   /* Allocate necessary vectors and matrices */
   if (!(b = (DOUBLE *)AllocDVector(3))) {
         printf("\nCould not allocate B vector.\n");
         exit(0);
   }

   if(!(a = (DOUBLE **)AllocDMatrix(3,3))) {
         printf("\nCould not allocate A matrix.\n");
         exit(0);
   }

   /* Assign values to B vector and A matrix */
   b[0] = 1003.88;
   b[1] = -667.05;
   b[2] = 3.0;

   (a[0])[0] = 1.3;
   (a[0])[1] = 342.7;
   (a[0])[2] = -17.7;
   (a[1])[0] = -222.17;
   (a[1])[1] = 3.0;
   (a[1])[2] = 23.6;
   (a[2])[0] = 1.0;
   (a[2])[1] = -17.4;
   (a[2])[2] = -15.6;

   /* In the following three statements AINV, X, and BTEST are
      allocated by the functions */

   /* Calculate the inverse of A */
   ainv = InvertDMatrix(a,NULL,NULL,3);
   if (!ainv) {
      printf("\nMatrix inversion of A failed.\n");
      exit(0);
   }

   /* Multiply A inverse and B to get X */
   x = MultDMatrixVector(ainv, b, NULL, 3, 3);

   /* Multiply A and X to get B-test, compare with B */
   btest = MultDMatrixVector(a, x, NULL, 3, 3);

   /* Display all the vectors and matrices */
   printf("\nMatrix A:");
   DisplayDMatrix(a,3,3);
   printf("\nVector B:");
   DisplayDVector(b,3);
   printf("\nMatrix A-inverse:");
   DisplayDMatrix(ainv,3,3);
   printf("\nSolution vector X:");
   DisplayDVector(x,3);
   printf("\nVector B-test (= AX) Compare with B:");
   DisplayDVector(btest,3);

   /* Free vectors and matrices */
   FreeDVector(x,3);
   FreeDVector(b,3);
   FreeDVector(btest,3);
   FreeDMatrix(a,3,3);
   FreeDMatrix(ainv,3,3);

   /* Finally, close the library */
   CloseLibrary(Matrix);

} /* main */
```

Listing Two: Output from SimEqs (Listing One)

```
Opening Matrix.library


Matrix = 2af448

Matrix A:
1.300000        342.700000      -17.700000
-222.170000     3.000000        23.600000
1.000000        -17.400000      -15.600000

Vector B:
1003.880000     -667.050000     3.000000

Matrix A-inverse:
-0.000292       -0.004532       -0.006525
0.002759        0.000002        -0.003127
-0.003096       -0.000293       -0.061033

Solution vector X:
2.710811        2.759137        -3.096036

Vector B-test (= AX) Compare with B:
1003.880000     -667.050000     3.000000
```

Listing Three: Least-Squares Regression Program

```
/*
   LSReg.c

   Here is a program that solves for two least-squares
   regression coefficients based on four experimentally
   designed tests.  It uses Matrix.library.

   This code is FREELY DISTRIBUTABLE but NOT PUBLIC DOMAIN
   (written by Randy Finch)
*/

#include "Test.h"

/*———————
      main()
———————*/

void main(argc,argv)
   int argc;
   char **argv;
{
   DOUBLE *yield;         /* RHS vector */
   DOUBLE *yieldinter;    /* RHS intermediate vector */
   DOUBLE *b;             /* Coefficient vector */
   DOUBLE *predyield;     /* Predicted yields vector, data x b */
   DOUBLE **data;         /* Data matrix */
   DOUBLE **datatr;       /* Transpose of data */
   DOUBLE **data2;        /* data-transpose x data */
   DOUBLE **data2inv;     /* Inverse of data2 */
   DOUBLE **testinv;      /* Check the inverse */

   puts("\nOpening Matrix.library\n");
   Matrix = OpenLibrary("Matrix.library",1);
   printf("\nMatrix = %x\n",Matrix);

   if(!Matrix) {
      printf("\nCould not open Matrix.library!\n");
      exit(0);
   }

   /* Allocate necessary vectors and matrices */
   if (!(yield = (DOUBLE *)AllocDVector(4))) {
         printf("\nCould not allocate YIELD vector.\n");
         exit(0);
   }

   if(!(data = (DOUBLE **)AllocDMatrix(4,3))) {
         printf("\nCould not allocate DATA matrix.\n");
         exit(0);
   }

   /* Assign values to yield vector and data matrix */
   yield[0] = 40.5;
   yield[1] = 49.9;
   yield[2] = 61.8;
   yield[3] = 78.2;

   (data[0])[0] = 1.0;
   (data[0])[1] = 50.0;
   (data[0])[2] = 5.0;
   (data[1])[0] = 1.0;
   (data[1])[1] = 70.0;
   (data[1])[2] = 5.0;
   (data[2])[0] = 1.0;
   (data[2])[1] = 50.0;
   (data[2])[2] = 9.0;
   (data[3])[0] = 1.0;
   (data[3])[1] = 70.0;
   (data[3])[2] = 9.0;

   /* In the following statements DATATR, DATA2, YIELDINTER,
      DATA2INV, TESTINV, B, and PREDYIELD are allocated by
      the functions */

   /* Calculate the transpose of DATA */
   datatr = TransposeDMatrix(data,NULL,4,3);

   /* Multiply DATATR and DATA */
   data2 = MultDMatrices(datatr,data,NULL,3,4,3);

   /* Multiply DATATR and YIELD to get YIELDINTER */
   yieldinter = MultDMatrixVector(datatr,yield,NULL,3,4);

   /* Calculate the inverse of (DATA-transpose x DATA) */
   data2inv = InvertDMatrix(data2,NULL,NULL,3);
   if (!data2inv) {
      printf("\nMatrix inversion of DATA2 failed.\n");
      exit(0);
   }

   /* Multiply DATA2INV and DATA2 for check */
   testinv = MultDMatrices(data2inv,data2,NULL,3,3,3);

   /* Multiply DATA2INV and YIELDINTER to get B */
   b = MultDMatrixVector(data2inv, yieldinter, NULL, 3, 3);

   /* Multiply DATA and B to get PREDYIELD, compare with YIELD */
   predyield = MultDMatrixVector(data, b, NULL, 4, 3);

   /* Display all the vectors and matrices */
   printf("\nMatrix DATA:");
   DisplayDMatrix(data,4,3);
   printf("\nVector YIELD:");
   DisplayDVector(yield,4);
   printf("\nMatrix DATA-transpose:");
   DisplayDMatrix(datatr,3,4);
   printf("\nMatrix DATA2 (DATA-transpose x DATA):");
   DisplayDMatrix(data2,3,3);
   printf("\nVector YIELDINTER (DATA-transpose x YIELD):");
   DisplayDVector(yieldinter,3);
   printf("\nMatrix DATA2-inverse:");
   DisplayDMatrix(data2inv,3,3);
   printf("\nMatrix TESTINV (DATA2INV x DATA2):");
   DisplayDMatrix(testinv,3,3);
   printf("\nCoefficient vector B:");
   DisplayDVector(b,3);
   printf("\nVector PREDYIELD (= DATAxB) Compare with YIELD:");
   DisplayDVector(predyield,4);

   /* Free vectors and matrices */
   FreeDVector(yield,4);
   FreeDVector(yieldinter,3);
   FreeDVector(b,3);
   FreeDVector(predyield,4);
   FreeDMatrix(data,4,3);
   FreeDMatrix(datatr,3,4);
   FreeDMatrix(data2,3,3);
   FreeDMatrix(data2inv,3,3);

   /* Finally, close the library */
   CloseLibrary(Matrix);

} /* main */
```

Listing Four: Output from LSReg (Listing Three)

```
Opening Matrix.library


Matrix = 2af448

Matrix DATA:
1.000000        50.000000       5.000000
1.000000        70.000000       5.000000
1.000000        50.000000       9.000000
1.000000        70.000000       9.000000

Vector YIELD:
40.500000       49.900000       61.800000       78.200000

Matrix DATA-transpose:
1.000000        1.000000        1.000000        1.000000
50.000000       70.000000       50.000000       70.000000
5.000000        5.000000        9.000000        9.000000

Matrix DATA2 (DATA-transpose x DATA):
4.000000        240.000000      28.000000
240.000000      14800.000000    1680.000000
28.000000       1680.000000     212.000000

Vector YIELDINTER (DATA-transpose x YIELD):
230.400000      14082.000000    1712.000000

Matrix DATA2-inverse:
12.312500       -0.150000       -0.437500
-0.150000       0.002500        0.000000
-0.437500       0.000000        0.062500

Matrix TESTINV (DATA2INV x DATA2):
1.000000        0.000000        0.000000
-0.000000       1.000000        0.000000
0.000000        0.000000        1.000000

Coefficient vector B:
-24.500000      0.645000        6.200000

Vector PREDYIELD (= DATAxB) Compare with YIELD:
38.750000       51.650000       63.550000       76.450000
```

Listing Five: Two-Dimensional Transformation Program

```
/*
   2DTrans.c

   Here is a program that performs several transformations
   on a box in 2-D space.  It uses Matrix.library.

   This code is FREELY DISTRIBUTABLE but NOT PUBLIC DOMAIN
   (written by Randy Finch)
*/

#include "Test.h"

/*————
     main()
————*/

void main(argc,argv)
   int argc;
   char **argv;
{
   LONG i;                  /* Index variable */
   DOUBLE *corner[4];       /* Coordinates of 4 box corners */
   DOUBLE *newcorner[4];    /* Coordinates of 4 box corners */
   DOUBLE **translate1;     /* First translation matrix */
   DOUBLE **translate2;     /* Second translation matrix */
   DOUBLE **scale;          /* Scale matrix */
   DOUBLE **rotate;         /* Rotation matrix */
   DOUBLE **transform;      /* Complete transformation matrix */
   DOUBLE **alttransform;   /* For intermediate calcs */

   puts("\nOpening Matrix.library\n");
   Matrix = OpenLibrary("Matrix.library",1);
   printf("\nMatrix = %x\n",Matrix);
```

```
  if(!Matrix) {
     printf("\nCould not open Matrix.library!\n");
     exit(0);
  }

  /* Allocate necessary vectors and matrices */
  for (i=0 ; i<4 ; i++) {
     if (!(corner[i] = (DOUBLE *)AllocDVector(3))) {
        printf("\nCould not allocate CORNER vectors.\n");
        exit(0);
     }
  }

  if(!(translate1 = (DOUBLE **)AllocDMatrix(3,3))) {
        printf("\nCould not allocate TRANSLATE1 matrix.\n");
        exit(0);
  }

  if(!(translate2 = (DOUBLE **)AllocDMatrix(3,3))) {
        printf("\nCould not allocate TRANSLATE2 matrix.\n");
        exit(0);
  }

  if(!(scale = (DOUBLE **)AllocDMatrix(3,3))) {
        printf("\nCould not allocate SCALE matrix.\n");
        exit(0);
  }

  if(!(rotate = (DOUBLE **)AllocDMatrix(3,3))) {
        printf("\nCould not allocate ROTATE matrix.\n");
        exit(0);
  }

  /* Assign coordinates to corner vectors */
  (corner[0])[0] = 5.0;
  (corner[0])[1] = 6.0;  /* Lower left */
  (corner[0])[2] = 1.0;

  (corner[1])[0] = 5.0;
  (corner[1])[1] = 9.0;  /* Upper left */
  (corner[1])[2] = 1.0;

  (corner[2])[0] = 9.0;
  (corner[2])[1] = 9.0;  /* Upper right */
  (corner[2])[2] = 1.0;

  (corner[3])[0] = 9.0;
  (corner[3])[1] = 6.0;  /* Lower right */
  (corner[3])[2] = 1.0;

  /* Assign values to translate matrices
     Zero elements do not need to be assigned */
  (translate1[0])[0] = (translate2[0])[0] = 1.0;
  (translate1[1])[1] = (translate2[1])[1] = 1.0;
  (translate1[2])[2] = (translate2[2])[2] = 1.0;
  /* Center half way between corners */
  (translate1[2])[0] = -( (corner[0])[0] + (corner[2])[0] )/2.0;
  (translate1[2])[1] = -( (corner[0])[1] + (corner[1])[1] )/2.0;
  (translate2[2])[0] = ( (corner[0])[0] + (corner[2])[0] )/2.0;
  (translate2[2])[1] = ( (corner[0])[1] + (corner[1])[1] )/2.0;

  /* Assign values to scale matrix */
  (scale[0])[0] = 1.5;
  (scale[1])[1] = 2.0;
  (scale[2])[2] = 1.0;

  /* Assign values to rotate matrix */
  (rotate[0])[0] = cos(PI/4.0);
  (rotate[0])[1] = sin(PI/4.0);
  (rotate[1])[0] = -sin(PI/4.0);
  (rotate[1])[1] = cos(PI/4.0);
  (rotate[2])[2] = 1.0;

#define MDM MultDMatrices

   /* transform and alttransform created by MDM */
   transform = MDM( (alttransform = MDM( (transform = MDM(translate1,
                                                      scale,NULL,3,3,3)),
                                         rotate,NULL,3,3,3)),
                    translate2,transform,3,3,3);

/* The above statement is equivalent to following statments:
transform = MultDMatrices(translate1, scale, NULL, 3, 3, 3);

alttransform = MultDMatrices(transform, rotate, NULL, 3, 3, 3);

transform = MultDMatrices(alttransform, translate2, transform, 3, 3, 3);
*/

   /* Get NEWCORNER[] from TRANSFORM and CORNER[]
      NEWCORNER[i] created by MultDVectorMatrix */
   for (i=0 ; i<4 ; i++) {
      newcorner[i] = MultDVectorMatrix(corner[i],transform,NULL,3,3);
   }

   /* Print results */
   printf("\nCORNER[] =");
   for (i=0 ; i<4 ; i++) {
      DisplayDVector(corner[i],3);
   }

   printf("\nTRANSFORM =");
   DisplayDMatrix(transform,3,3);

   printf("\nNEWCORNER[] =");
   for (i=0 ; i<4 ; i++) {
      DisplayDVector(newcorner[i],3);
   }

   /* Free vectors and matrices */
   for (i=0 ; i<4 ; i++) {
      FreeDVector(corner[i],3);
   }

   for (i=0 ; i<4 ; i++) {
      FreeDVector(newcorner[i],3);
   }

   FreeDMatrix(translate1,3,3);
   FreeDMatrix(translate2,3,3);
   FreeDMatrix(scale,3,3);
   FreeDMatrix(rotate,3,3);
   FreeDMatrix(transform,3,3);
   FreeDMatrix(alttransform,3,3);

   /* Finally, close the library */
   CloseLibrary(Matrix);

} /* main */
```

Listing Six: Output from 2DTrans (Listing Five)

```
Opening Matrix.library


Matrix = 2af448

CORNER[] =
5.000000        6.000000        1.000000

5.000000        9.000000        1.000000

9.000000        9.000000        1.000000

9.000000        6.000000        1.000000

TRANSFORM =
1.060660        1.060660        0.000000
-1.414214       1.414213        0.000000
10.181981       -10.531223      1.000000

NEWCORNER[] =
7.000000        3.257359        1.000000

2.757359        7.499999        1.000000

7.000000        11.742641       1.000000

11.242641       7.500001        1.000000
```

•AC•

The third and final installment in the 'Crunchy Frog' approach to programming

THE ART of Selecting and Setting Gadgets in C

by Jim Fiore

The implementation and use of Intuition menus was the subject of my last article ("Crunchy Frog II", July 1990). As was demonstrated in that piece, menus are very useful for making choices and initiating actions. In many circumstances, though, a more direct way of obtaining user input is desired. Also, although menus do allow the user to make specific choices from a list, there's no convenient way of obtaining information in a text or setting mode with them. For example, the user will have a difficult time communicating such simple info as "set the volume to 70%," or "my name is Doug Piranha." For user input of this type, we turn to Intuition Gadgets.

Gadgets come in two basic classes—system gadgets, which include items like the close window, depth arrangement, and resizing gadgets, and user gadgets which include the String, Boolean, and Proportional types. System gadgets are very easy to use. As a matter of fact, we've already used some of them in our past programs. In order to use a system gadget, all you need to do is set the appropriate flag(s) in your NewWindow structure and then react to the IDCMP message in an appropriate manner. The placement, imagery, and logic of system gadgets are taken care of for you. User gadgets, on the other hand, can be programmed to provide different services with a variety of resulting imagery. It's not uncommon for programmers to cluster different user gadgets for a desired effect. You have great freedom in determining exactly what your gadgets will look like, where they will be located, and the kind of information your program will receive. With this power comes a certain level of complexity. If you plan properly, though, using gadgets should be a relatively easy endeavor.

As stated earlier, there are three types of user gadgets. The String gadget is used for text input. An example of this would be the little box that Workbench uses for the Rename function. Boolean gadgets are used for simple yes/no choices, like the Resume/Cancel buttons found on system requests. Proportional or Prop gadgets are used to obtain percentage values. A good example of Prop gadgets would be the Red/Green/Blue color sliders found in Preferences. A classic example of gadget combination would be found in a filename requester. Normally, this requester would include String gadgets for you to directly type in a name, a Prop gadget for a scroll bar usually found off to one side, and a host of Boolean gadgets to implement the "Okay", "Cancel", etc. buttons, and the up/down scroll buttons (typically found above and below the scroll bar). Boolean gadgets may also be used in a variety of ways to implement the "click on a filename" function. All told, a filename requester may contain a dozen different gadgets. Is all of this starting to sound confusing? Well, fear not; it's all rather straightforward once it's broken down.

Like virtually everything else in Intuition, gadgets are described with, and controlled by, structures. Here's the Gadget structure:

```
 struct Gadget
{
 struct Gadget *NextGadget;
 SHORT LeftEdge, TopEdge, Width, Height;
 USHORT Flags;
 USHORT Activation;
 USHORT GadgetType;
 APTR GadgetRender;
 APTR SelectRender;
 struct IntuiText *GadgetText;
 LONG MutualExclude;
 APTR SpecialInfo;
 USHORT GadgetID;
 APTR UserData;
}
```

The use of the first five fields is the same as it was in our earlier structures. The Flags field indicates highlighting and rendering choices. You may highlight via color complement (GADGHCOMP) by drawing a box around the gadget (GADHBOX), by displaying alternate imagery (GADGHIMAGE), or with no visible rendering (GADGHNONE). Since alternate imagery means either Borders or Images, I tend to think of GADGHIMAGE as GADGHALTERNATE. The flag GADGIMAGE is used to indicate that rendering is done with an Image and not a Border. Please note that not all gadget types can use all rendering types. For example, String gadgets must use GADGHCOMP and Prop gadgets should use Image structures.

It's possible for your gadget to be sized and positioned relative to the containing window. For this purpose we have the following flags: GRELBOTTOM (Gadget RELative to BOTTOM), GRELRIGHT, GRELWIDTH, and GRELHEIGHT. None of these four flags should be used if your gadget's position and size are static. The SELECTED flag allows you to have the gadget start in the selected state. The last flag is GADGDISABLED. It's possible to enable/disable gadgets through the functions OnGadget() and OffGadget(). Disabled gadgets will be ghosted (i.e., have a faint pattern of dots laid over them) and unavailable to the user.

The Activation field includes a large number of flags too. TOGGLESELECT alters the gadget state back and forth each time it is hit. This is analogous to a locking button vs. a momentary contact type. ENDGADGET is useful if the gadget is attached to a Requester. FOLLOWMOUSE is used in order to receive IDCMP MOUSEMOVE events while manipulating the gadget. Other flags exist which allow you to control window sizing or which only pertain to String gadgets (STRINGCENTER and STRINGRIGHT). Perhaps the two most important Activation flags are GADGIMMEDIATE and RELVERIFY. If you set GADGIMMEDIATE you will receive IDCMP GADGETDOWN events after the user clicks on your gadget. If RELVERIFY (RELease VERIFY) is set, you will receive GADGETUP events if the user released the mouse button while over the gadget. It is not uncommon to set both flags.

The GadgetType field indicates which of the three gadgets you want (BOOLGADGET, STRGADGET, or PROPGADGET), if they are found in a Requester (REQGADGET), and whether or not the containing window is a Gimmezerozero type (GZZGADGET). GadgetRender and SelectRender point to appropriate Image or Border structures depending on whether you set the GADGIMAGE and/or GADGHIMAGE flags. If you would like text along with your gadget, GadgetText should point to an initialized IntuiText structure. The MutualExclude field is not presently used, so if you need something like a set of mutually exclusive Boolean gadgets, you will have to create your own rendering scheme.

SpecialInfo points to either a PropInfo structure, a StringInfo structure, or NULL. We will look at these special structures in a moment. GadgetID and UserData are for your own use. Generally, GadgetID will hold a number of your choosing which will enable you to distinguish this gadget from any other. For example, if your window has three GADGIMMEDIATE gadgets and you receive a GADGETDOWN message, you can determine which gadget was used by inspecting the GadgetID field.

If you're using String or Prop gadgets, secondary structures must be filled out. String gadgets require StringInfo structures.

```
struct StringInfo
{
 UBYTE *Buffer; /* pointer to the starting/final string */
 UBYTE *UndoBuffer; /* pointer to an optional 'undo current' buffer */
 SHORT BufferPos; /* initial character position of cursor */
 SHORT MaxChars; /* size of buffer including terminating NULL */
 SHORT DispPos; /* position of first displayed character */
 SHORT UndoPos; /* position in the undo buffer */
 SHORT NumChars; /* number of chars presently in buffer */
 SHORT DispCount; /* number of chars visible */
 SHORT CLeft,CTop; /* container offsets */
 struct Layer *LayerPtr;
 LONG LongInt;
 struct KeyMap *AltKeyMap;
}
```

It's possible to share a single undo buffer among several String gadgets. It must be at least as large as the largest buffer. Also, note that Intuition sets and maintains the UndoPos, NumChars, DispCount, CLeft, CTop, LayerPtr, and LongInt variables for you. If you want an alternate KeyMap, remember to set the ALTKEYMAP Activation flag. For Prop gadgets, you need to use a PropInfo structure.

```
struct PropInfo
{
 USHORT Flags;
 USHORT HorizPot; /* you set the initial value for these four */
 USHORT VertPot;
 USHORT HorizBody;
 USHORT VertBody;
 USHORT CWidth; /* the following are set and maintained by Intuition */
 USHORT CHeight;
 USHORT HPotRes;
 USHORT VPotRes;
 USHORT LeftBorder;
 USHORT TopBorder;
}
```

Prop gadgets are styled after electronic slide potentiometers. Most people are familiar with these guys from consumer audio equipment. The default imagery for a Prop gadget is a rectangular container with a smaller rectangular 'knob' inside. If you would like this default imagery, set the AUTOKNOB flag. AUTOKNOB has the advantage of automatically scaling the size of the knob in accordance with the Body variables. Since Intuition takes care of the imagery, the Gadget's GadgetRender field needs to point to an uninitialized Image structure. If you would like the AUTOKNOB functions, but don't want the outer border, then set

PROPBORDERLESS. For movement along the horizontal, set FREEHORIZ. FREEVERT allows for movement along the vertical. The two Pot variables indicate the set percentage, and the two Body variables indicate how much of an item is actually shown or available. It is best to think of the Pot variables as a percentage of the whole, where the whole is the maximum value FFFF hex. In other words, FFFF is 100% and 0 is 0%. Therefore, 4000 hex is about 25%. Using this idea, you can scale the Pot value to your needs. For example, let's say that this pot will be used as a volume control that has 10 settings. A 0 will mean no volume and FFFF will mean "turn it all the way up." Each step will equal FFFF/10. In order to determine a particular setting, simply divide the Pot value by the step size. The Body variables are typically used with scroll bars.

For example, if you're scanning a file requester that shows five names at a time, and there are 15 names in your directory, the knob can be set to 1/3 the size of the whole gadget. If you're looking at the top five names, then the knob will be set at the top of the gadget; and if you're looking at the last five, the knob will be at the bottom. In this example the Pot variable will indicate whether the knob is at the top or bottom of the gadget, and the Body variable will be set to FFFF/3. You can read the Pot and Body variables at any time, but if you wish to change the imagery (i.e., make the knob bigger or move it to a new location), you must set the variables (and imagery) with a call to the ModifyProp() or NewModifyProp() function. Also, note that the Body value will indicate how large a "page" is. You can move a Prop gadget's knob directly or by clicking on either side of it. The larger the Body value is, the farther the knob will jump when you click next to it.

Now for our example program: it adds six gadgets to our main window. Immediately below our XY coordinate readout is a simple String gadget. You can type in a message here (up to 69 characters) and use this as one of the messages accessed via the menus. Originally, we had three different fixed messages, but now we can set the messages interactively. After typing in the message, simply click on one of the three buttons below the String gadget. Your text will be copied to that message buffer and can now be displayed in the text window. As verification, your chosen number will appear to the right of the last button. Each of these buttons is a Boolean gadget. The first two use a simple Border structure for rendering and IntuiText for their names. The first uses color complement highlighting while the second uses a surrounding box. The third button is defined solely by a simple Image. Note that the word "three" is part of the Image, and not separate IntuiText. Like the first button, number three uses color complement highlighting. By using a second Image structure and setting GADGHIMAGE, we could highlight this one with a completely different image.

Our two remaining gadgets are Prop gadgets. They are relative types and have been placed in the bottom and right-hand window borders. Notice that if you resize the window, the gadgets will resize too. The rightmost gadget is a "do nothing " gadget. All I have done here is scaled its Pot value and displayed it next to the XY coordinate readout. It is scaled for 0 to 100%. The interesting thing about Prop gadgets is that the Pot values increase as the knob is moved to the right or down. Consequently, the scaling routine in update_prop2() must take care of this. Notice that the page size for this gadget is 10%. This was set back in prop2's VertBody field (0xffff/11). Normally you will find that you need to add 1 to your "number of parts" for things to work out, since you usually want the end points to be included. The horizontal pot uses our own custom knob image. Note that its page size is much larger than the physical size of the knob, whereas AUTOKNOBs are as large as the page size (the size is set at 0xffff/4). This knob changes the amount of red in the background color. Since the background color starts off with a red amount of 0xa, we need to set the initial position of the knob to reflect this. With scaling shown, this is 0xffff*0xa/0xf. We divide by 0xf because that is the maximum amount of red that we can have. In other words, we are viewing 0xa parts out of 0xf total. Then we multiply by the maximum Pot value, 0xffff, for scaling. The color is changed via a call to SetRGB4() in our update_color() function. Note how the variable red is scaled in order to obtain values from 0 to 15.

In order for us to use these gadgets, we must react to GADGETUP and GADGETDOWN messages in handle_main_messages(). Note that our old dummy handlers, handle_main_gadgetdown() and handle_main_gadgetup(), look at the GadgetID in order to determine what to do. A close look at handle_main_messages() will reveal a new flag called moving_prop1. This flag allows us to get constant color updates while the user moves the red color pot. Compare this to the right pot. Its value is not updated until after the user has released the knob. In order to get this update we call update_color() if we have received MOUSEMOVEs *and* moving_prop1 is set. Note that since prop1 uses both GADGIMMEDIATE and RELVERIFY, this flag is set only when the user has clicked on this knob and not released it. The moment he releases the mouse button, we get a RELVERIFY message and moving_prop1 is reset to FALSE. If desired, we can use either the direct update approach with each MOUSEMOVE, or we can collect MOUSEMOVEs as shown previously.

Like most example programs, this one is neither pretty nor commercially useful; however, it does illustrate how to set up gadgets and monitor them. Perhaps more important, there is plenty of room here for you to experiment. I suggest that you try using different rendering and highlighting possibilities for starters, and then try altering the positions and scaling factors. You might even try to implement mutual exclusion by following the *1.2 Enhancer Manual*. For further details, the *Intuition Reference Manual* is a must. In any case, I hope you find this useful. *[Program listing begins on page 82.]*

Please write to Jim Fiore c/o Amazing Computing, P.O. Box 869, Fall River, MA 02722-0869.

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Listing: CrunchyFrog3.c

```
/* Jim Fiore @ dissidents. This program is copyrighted, however, you can use it,
with the exception of distribution for a profit.

   compiled and linked with Manx Aztec C v3.6 under AmigaDOS 1.3

   cc +L CrunchyFrog3.c

   ln +cdb CrunchyFrog3.o -lm32 -lc32

   Image data must be in CHIP RAM. ( +cdb for Manx is the easy way out. )

*/

#include "functions.h"
#include "intuition/intuition.h"
#include "math.h"

/* ——————— defines ——————— */

/* MyText(*RastPort, Xposition, Yposition, char *buffer) */

#define MyText(r,x,y,b) Move((r),(x),(y)); Text((r),(b),strlen(b))


#define INTUITION_REV 33L
#define GRAPHICS_REV  33L
#define DEPTH         3
#define MAX_COLORS    8   /* 2 raised to DEPTH */

/* ——————— Globals ——————— */

struct IntuitionBase *IntuitionBase=0L;
struct GfxBase       *GfxBase=0L;
struct Window        *main_wind=0L;
struct Screen        *main_scrn=0L;
struct ViewPort      *view_port=0L;

/* data chunk new for 3 */

#define STRING1 1     /* defines for gadget IDs */
#define BOOL1   2
#define BOOL2   3
#define BOOL3   4
#define PROP1   5
#define PROP2   6

/* Border and such for the BOOL gadgets. */

SHORT bool_button_points[] = { 0,0, 50,0, 50,10, 0,10, 0,0 };

struct Border bool_button = {  -1,-1, 2,0, JAM1, 5, bool_button_points, NULL };

struct IntuiText bool_text1 = {4,0,JAM1,12,1,NULL,(UBYTE *)"One"};
struct IntuiText bool_text2 = {4,0,JAM1,12,1,NULL,(UBYTE *)"Two"};
/* we don’t need a third one since ‘three’ will be part of the image */

USHORT bool_image_data[] = {
/* 48 wide by 11 high by 2 planes deep */
/* plain number 0 */

0x1fff, 0xffff, 0xfff8,
0x7000, 0x0000, 0x000e,
0x8ff7, 0x0000, 0x0001,
0x8996, 0x0003, 0xc0f1,
0xe186, 0x1dc6, 0x218b,
0x6187, 0xc66f, 0xe3fb,
0xe186, 0x660c, 0x0303,
0xe186, 0x6606, 0x6199,
0x83c6, 0x6f03, 0xe0f9,
0x7000, 0x0000, 0x000e,
0x1803, 0xffff, 0xff80,

/* plain number 1 */

0x07f0, 0x07f0, 0x1fe0,
0x0000, 0x0000, 0x0000,
0x0ff7, 0x0000, 0x0000,
0x0996, 0x0003, 0xc0f0,
```

```
0x6186, 0x1dc6, 0x218b,
0x6187, 0xc66f, 0xe3fb,
0x6186, 0x660c, 0x0303,
0x6186, 0x6606, 0x6198,
0x03c6, 0x6f03, 0xe0f8,
0x0000, 0x0000, 0x0000,
0x07fc, 0x1ffe, 0x0078
};

struct Image bool_image = { 0,0, 48,11,2, bool_image_data, 0x5, 0x0, NULL };

/* Images for the PROP gadget ‘sliders’ */

struct Image default_knob = { NULL };   /* this is for AUTOKNOB */

USHORT custom_knob_data[] =  /* 32 wide by 5 high by 1 plane deep */
{ 0xfe1f, 0xf87f,
  0x073c, 0x3ce0,
  0x00c3, 0xc300,
  0x073c, 0x3ce0,
  0xfe1f, 0xf87f };

struct Image custom_knob = { 0,0, 32,5,1, custom_knob_data, 0x2, 0x6, NULL };

/* PropInfos for our sliders */

struct PropInfo prop1_info =            /* Found at bottom of window */
 { FREEHORIZ, 0xffff*0xa/0xf,0, 0xffff/4,0 };    /* uses custom knob */

struct PropInfo prop2_info =            /* Found along right edge of window */
 { FREEVERT | AUTOKNOB, 0,0, 0,0xffff/11 };

/* StringInfo and other stuff for the msg string gadget */

UBYTE msg_buffer[70] = { ‘\0’ }, msg_undo_buffer[70] = { ‘\0’ };

struct StringInfo msg_info = { msg_buffer, msg_undo_buffer, 0,70, 0 };

SHORT msg_border_points[] = { 0,0, 170,0, 170,11, 0,11, 0,0 };

struct Border msg_border = {  -1,-2, 4,0, JAM1, 5, msg_border_points, NULL };

struct IntuiText msg_text = {2,0,JAM1,-35,0,NULL,(UBYTE *)"Msg:"};

/* and now, da gadgets.... */

struct Gadget main_wind_gadgets[] = {
 { &main_wind_gadgets[1], 45, 110, 168,10, GADGHCOMP, GADGIMMEDIATE,
   STRGADGET, (APTR)&msg_border, NULL, &msg_text, NULL, (APTR)&msg_info,
   STRING1, NULL},

 { &main_wind_gadgets[2], 10,125, 49,9, GADGHCOMP, RELVERIFY, BOOLGADGET,
   (APTR)&bool_button, NULL, &bool_text1, NULL, NULL, BOOL1, NULL },

 { &main_wind_gadgets[3], 70,125, 49,9, GADGHBOX, RELVERIFY, BOOLGADGET,
   (APTR)&bool_button, NULL, &bool_text2, NULL, NULL, BOOL2, NULL },

 { &main_wind_gadgets[4], 130,124, 48,11, GADGHCOMP | GADGIMAGE, RELVERIFY,
   BOOLGADGET,(APTR)&bool_image, NULL, NULL, NULL, NULL, BOOL3, NULL },

 { &main_wind_gadgets[5], 0,-8, -12, 9, GADGHCOMP | GRELWIDTH | GRELBOTTOM |
   GADGIMAGE, FOLLOWMOUSE | GADGIMMEDIATE | RELVERIFY, PROPGADGET,
   (APTR)&custom_knob, NULL, NULL, NULL, (APTR)&prop1_info, PROP1, NULL },

 { NULL, -15,10, 16,-19, GADGHCOMP | GRELHEIGHT | GRELRIGHT | GADGIMAGE,
   FOLLOWMOUSE | GADGIMMEDIATE | RELVERIFY, PROPGADGET, (APTR)&default_knob,
   NULL, NULL, NULL, (APTR)&prop2_info, PROP2, NULL },};

/* end of data chunk, new for 3 */

/* use the 80 character topaz font for the screen lettering */

struct TextAttr topaz80_font_attr={
 (UBYTE *)"topaz.font",
 TOPAZ_EIGHTY,
 FS_NORMAL,
 FPF_ROMFONT };

struct NewScreen ns={
 0, 0,                          /* LeftEdge, TopEdge */
 640, 200,                      /* Width, Height */
 DEPTH, 0, 1,                    /* Depth. DetailPen, BlockPen */
 HIRES,                          /* ViewModes */
 SCREENBEHIND | CUSTOMSCREEN,    /* Type */
 &topaz80_font_attr,             /* Font */
 (UBYTE *)" Dinsdale's Screen ", /* DefaultTitle */
 NULL, NULL };                   /* Gadgets, CustomBitMap */

/* this structure altered for 3 : Height, FirstGadget, MinWidth, MinHeight */
struct NewWindow m_nw={
 50, 20,                           /* LeftEdge, TopEdge */
 300, 150,                         /* Width, Height */
 -1, -1,                           /* DetailPen, BlockPen (default) */
 MENUPICK | GADGETUP | GADGETDOWN | \
 RAWKEY | CLOSEWINDOW | MOUSEMOVE | \
 MOUSEBUTTONS | NEWSIZE ,          /* IDCMPFlags */
 SMART_REFRESH | ACTIVATE | \
 WINDOWSIZING | WINDOWCLOSE | \
 WINDOWDEPTH | WINDOWDRAG | \
 REPORTMOUSE,                      /* Flags */
 main_wind_gadgets, NULL,          /* FirstGadget, CheckMark */
 (UBYTE *)" Main Window ",         /* Title */
 NULL, NULL,                       /* Screen, BitMap */
 250, 145,                         /* MinWidth, MinHeight */
 640, 200,                         /* MaxWidth, MaxHeight */
 CUSTOMSCREEN };                   /* Type */


UBYTE msg1[70]={"Some say that Heaven is Hell"};
UBYTE msg2[70]={"Some say that Hell is Heaven"};
UBYTE msg3[70]={"Some say Ha Ha Ha"};

struct Window       *text_wind=0L;

struct NewWindow txt_nw={
 250, 50,                           /* LeftEdge, TopEdge */
 250, 100,                         /* Width, Height */
 -1, -1,                           /* DetailPen, BlockPen (default) */
 MENUPICK | GADGETUP | GADGETDOWN | \
 RAWKEY | CLOSEWINDOW | MOUSEMOVE | \
 MOUSEBUTTONS | NEWSIZE,           /* IDCMPFlags */
 SMART_REFRESH | ACTIVATE | \
 WINDOWSIZING | WINDOWCLOSE | \
 WINDOWDEPTH | WINDOWDRAG | \
 REPORTMOUSE,                      /* Flags */
 NULL, NULL,                       /* FirstGadget, CheckMark */
 (UBYTE *)" Text Window ",         /* Title */
 NULL, NULL,                       /* Screen, BitMap */
 100, 50,                          /* MinWidth, MinHeight */
 640, 200,                         /* MaxWidth, MaxHeight */
 CUSTOMSCREEN };                   /* Type */

/* main menu segment */

struct IntuiText main_itxt[]={
 {0,1,JAM1,3,1,NULL,(UBYTE *)"Open Text Window"},
 {0,1,JAM1,3,1,NULL,(UBYTE *)"Close Text Window"},
 {0,1,JAM1,3,1,NULL,(UBYTE *)"Odds and Ends"},
 {0,1,JAM1,3,1,NULL,(UBYTE *)"Flash Screen"},
 {0,1,JAM1,3,1,NULL,(UBYTE *)"Screen to Back"},
 {0,1,JAM1,3,1,NULL,(UBYTE *)"-Quit-"},};

struct MenuItem main_mi[]={
 {&main_mi[1],0,0,144,10,
  (ITEMTEXT  | ITEMENABLED | HIGHCOMP),
  NULL,(APTR)&main_itxt[0],NULL,NULL},

 {&main_mi[2],0,10,144,10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP),
  NULL,(APTR)&main_itxt[1],NULL,NULL},

 {&main_mi[5],0,20,144,10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP),
  NULL,(APTR)&main_itxt[2],NULL,NULL,&main_mi[3]},

   {&main_mi[4],120,0,130,10,
    (ITEMTEXT | ITEMENABLED | HIGHCOMP),
    NULL,(APTR)&main_itxt[3],NULL,NULL},

   {NULL,120,10,130,10,
    (ITEMTEXT | ITEMENABLED | HIGHCOMP),
    NULL,(APTR)&main_itxt[4],NULL,NULL},
```

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```
 {NULL,0,30,144,10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP),
  NULL,(APTR)&main_itxt[5],NULL,NULL},};

struct Menu main_menu ={NULL,0,0,72,0,MENUENABLED,  "Project  ",&main_mi[0]};

/* text_wind segment */

USHORT image_data[]=
/* 48 wide by 20 high by 1 plane deep */
/* plain number 0 */

{ 0x3ff0, 0x0000, 0x0000,
  0x601f, 0xf000, 0x0000,
  0x3800, 0x1f00, 0x0000,
  0x0780, 0x01e0, 0x0000,
  0x007e, 0x003f, 0x0000,
  0x0003, 0xe1c0, 0xfe00,
  0x0000, 0x3700, 0x03e7,
  0x007f, 0xdc00, 0x003e,
  0x00c0, 0x3001, 0x0002,
  0x00c0, 0x6007, 0x0002,
  0x0078, 0x701d, 0xc002,
  0x00cf, 0xfc28, 0x3fe2,
  0x00c0, 0x3ff8, 0x0006,
  0x0078, 0x0020, 0x0004,
  0x003f, 0xffe0, 0x0004,
  0x0060, 0x0040, 0x0004,
  0x0070, 0x00c0, 0x0034,
  0x000f, 0xffff, 0x83ec,
  0x0000, 0x0000, 0xfc7f,
  0x0000, 0x0000, 0x0000 };

struct Image menu_image = { 0,0, 48,20,1, image_data, 0x2, 0x0, NULL };

struct IntuiText text_itxt[]={
 {0,1,JAM1,2,1,NULL,(UBYTE *)"Message 1"},
 {0,1,JAM1,2,1,NULL,(UBYTE *)"Message 2"},
 {0,1,JAM1,2,1,NULL,(UBYTE *)"Message 3"},
 {0,1,JAM1,2,1,NULL,(UBYTE *)"Message 1"},
 {0,1,JAM1,2,1,NULL,(UBYTE *)"Message 2"},
 {0,1,JAM1,2,1,NULL,(UBYTE *)"Message 3"},
 {0,1,JAM1,2+CHECKWIDTH,1,NULL,(UBYTE *)"Color 1"},
 {2,1,JAM1,2+CHECKWIDTH,1,NULL,(UBYTE *)"Color 2"},
 {3,1,JAM1,2+CHECKWIDTH,1,NULL,(UBYTE *)"Color 3"},};


/* Draw */

struct MenuItem text_mi[]={
 {&text_mi[1],0,0,(90+COMMWIDTH),10,
  (ITEMTEXT  | ITEMENABLED | HIGHCOMP | COMMSEQ),
  NULL,(APTR)&text_itxt[0],NULL,'1'},

 {&text_mi[2],0,10,(90+COMMWIDTH),10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP | COMMSEQ),
  NULL,(APTR)&text_itxt[1],NULL,'2'},

 {NULL,0,20,(90+COMMWIDTH),10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP | COMMSEQ),
  NULL,(APTR)&text_itxt[2],NULL,'3'},

/* Erase */

 {&text_mi[4],0,0,(90+COMMWIDTH),10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP | COMMSEQ),
  NULL,(APTR)&text_itxt[3],NULL,'4'},

 {&text_mi[5],0,10,(90+COMMWIDTH),10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP | COMMSEQ),
  NULL,(APTR)&text_itxt[4],NULL,'5'},

 {NULL,0,20,(90+COMMWIDTH),10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP | COMMSEQ),
  NULL,(APTR)&text_itxt[5],NULL,'6'},

/* Drawing color */

 {&text_mi[7],0,0,(75+CHECKWIDTH+COMMWIDTH),10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP | COMMSEQ | CHECKED | CHECKIT | MENUTOGGLE),
  0x6,(APTR)&text_itxt[6],NULL,'7',NULL},

 {&text_mi[8],0,10,(75+CHECKWIDTH+COMMWIDTH),10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP | COMMSEQ | CHECKIT | MENUTOGGLE),
  0x5,(APTR)&text_itxt[7],NULL,'8',NULL},

 {&text_mi[9],0,20,(75+CHECKWIDTH+COMMWIDTH),10,
  (ITEMTEXT | ITEMENABLED | HIGHCOMP | COMMSEQ | CHECKIT | MENUTOGGLE),
  0x3,(APTR)&text_itxt[8],NULL,'9',NULL},

 {NULL,10,30,48,20,\
  ( ITEMENABLED | HIGHBOX ),\
  NULL,(APTR)&menu_image,NULL,NULL,NULL},};

struct Menu text_menu[]={
 {&text_menu[1],0,0,48,0,MENUENABLED,  "Draw  ",&text_mi[0]},
 {&text_menu[2],50,0,56,0,MENUENABLED,  "Erase  ",&text_mi[3]},
 {NULL,110,0,56,0,MENUENABLED,  "Color  ",&text_mi[6]},};

USHORT sys_color_table[MAX_COLORS]={ 0xabc, 0x130, 0xf00, 0xaa0, 0xbf0,
                                     0x54f, 0xb0e, 0x3aa};

VOID open_all(), damp_mop(), handle_main_messages(), setup_main_wind(),
     handle_main_rawkey(), handle_main_menu(), handle_main_gadgetdown(),
     handle_main_gadgetup(), handle_main_mousebuttons(),
     handle_main_newsize(), handle_text_messages(), handle_text_menu(),
     close_text_window();

VOID update_color(), update_prop2();   /* <- new for 3 */

/*——————————start of main()——————————*/

main()

{
 LONG main_wait_bit, wait_mask, text_wait_bit;


 /* – open Intuition and Graphics libs — */

 open_all();

 if ( (main_scrn = (struct Screen *)OpenScreen(&ns)) == NULL ) damp_mop();

 m_nw.Screen=main_scrn;

 if ( (main_wind = (struct Window *)OpenWindow(&m_nw)) == NULL) damp_mop();

 SetMenuStrip( main_wind, &main_menu );

 txt_nw.Screen=main_scrn;

 if ( (text_wind = (struct Window *)OpenWindow(&txt_nw)) == NULL) damp_mop();

 SetMenuStrip( text_wind, text_menu );

 /*  set screen colors to our choices */

 view_port = ViewPortAddress(main_wind);

 LoadRGB4(view_port, sys_color_table, MAX_COLORS);

 ScreenToFront(main_scrn);

 /* do some drawing */

 setup_main_wind();

 /* – set up IDCMP read loop. – */

 FOREVER         /* also known as for(;;) */
 {
    main_wait_bit = 1<<main_wind->UserPort->mp_SigBit; /* get main_wind's */
                                                       /* signal bit */
    if ( text_wind )
      text_wait_bit = 1<<text_wind->UserPort->mp_SigBit; /* get text_wind's*/
    else                                                 /* signal bit */
      text_wait_bit = 0L;

    wait_mask = Wait( main_wait_bit | text_wait_bit ); /* go to sleep til user does
something */

    if (wait_mask & main_wait_bit)  /* true if main_wind woke up */
     handle_main_messages();

    if (wait_mask & text_wait_bit)  /* true if main_wind woke up */
     handle_text_messages();

 }

}          /* end of main() */


/*———— opens Intuition and Graphics libs ————*/

VOID open_all()

{

 IntuitionBase=(struct IntuitionBase *)OpenLibrary("intuition.library",
INTUITION_REV);

 if (IntuitionBase==NULL) damp_mop();

 GfxBase=(struct GfxBase *)OpenLibrary("graphics.library", GRAPHICS_REV);

 if (GfxBase==NULL)  damp_mop();

}



/*——— closes windows, screen, Graphics, Intuition ———*/

VOID damp_mop()

{
 struct IntuiMessage *mes;

 if ( main_wind )
 {        /* Drain the IDCMP. Actually, this isn't really required as this
              memory will be reclaimed, but I sleep better if I do it */
   while( mes=(struct IntuiMessage *)GetMsg( main_wind->UserPort ) )
     ReplyMsg( mes );

   ClearMenuStrip( main_wind );
   CloseWindow( main_wind );
 }

 if ( text_wind )     close_text_window();

 if ( main_scrn )     CloseScreen( main_scrn );
 if ( GfxBase )       CloseLibrary( GfxBase );
 if ( IntuitionBase ) CloseLibrary( IntuitionBase );
 exit (FALSE);

}
```

```
   /* this function altered for 3 */
VOID setup_main_wind()  /* draws x,y axis and a sine wave */
{
 struct RastPort *rast = main_wind->RPort;
 double x, y;

 /* Draw x, y axis. First set the pen color to pen 4. The origin will be
    at point 20, 50, the max swing will be +/- 35 pixels, and the length
    will be 200 pixels  */

 SetAPen( rast, 4);

 Move( rast, 20, 15);
 Draw( rast, 20, 85);

 Move( rast, 20, 50);
 Draw( rast, 220, 50);

/* Now for the sine wave. Move to the origin, and to see it more clearly,
   change to pen 5 */

 Move( rast, 20, 50);
 SetAPen( rast, 5);

 for( x=1.0; x<200.0; x=x+1.0)
 {
     y = -1.0 * (35.0 * sin( x/10.0 ));

     /* Offset y so it stradles the x axis */
     y = y + 50.0;

     /* Plot line segment. Note the x offset. Cast is important! */
     Draw( rast, (SHORT)x+20, (SHORT)y );
 }

/* Print the mouse position titles (X, Y) next to where the values will
   appear */

 SetAPen( rast, 6);
 MyText( rast, 20, 100, "X");
 MyText( rast, 80, 100, "Y");

/* new for 3 below, print titles in appropriate spots */

 MyText( rast, 145, 100, "Prop2");
 MyText( rast, 190, 132, "Copy");

}


VOID update_coords( x, y )    /* prints the mouse x y position */
SHORT x,y;
{
   UBYTE            buf[5];
   struct RastPort  *rast = main_wind->RPort;


   sprintf( buf, "%4d", x);
   MyText( rast, 30, 100, buf);

   sprintf( buf, "%4d", y);
   MyText( rast, 90, 100, buf);

}


/* dummy handlers, to be used in the future, follow */

VOID  handle_main_mousebuttons( code )
USHORT code;
{
}

VOID  handle_main_rawkey( code, qualifier )
USHORT code, qualifier;
{
}


   /* this function new for 3 */
VOID update_color()
{
 USHORT red;

 red = ((struct PropInfo *)(main_wind_gadgets[4].SpecialInfo))->HorizPot;
 red = red * 15 / 0xffff;
 SetRGB4( view_port, 0, red, 0xb, 0xc );

}


   /* this function new for 3 */
VOID update_prop2()
{
 USHORT value;
 UBYTE  buf[6];

    /* scale for 100% and print value next to XY co-ords */

 value = ((struct PropInfo *)(main_wind_gadgets[5].SpecialInfo))->VertPot;
 value = 100 - value * 100 / 0xffff;
 sprintf( buf, "%4d", value );
 MyText( main_wind->RPort, 185, 100, buf );

}

   /* this function altered for 3 , used to be a dummy handler */
VOID  handle_main_gadgetdown( address )
APTR address;
{
 USHORT id = ((struct Gadget *)address)->GadgetID;

 switch( id )
 {
   case STRING1:
    /* do nothing */
    break;

   case PROP1:
    update_color();
    break;

   case PROP2:
    update_prop2();
    break;
 }

}


   /* this function altered for 3 , used to be a dummy handler */
VOID  handle_main_gadgetup( address )
APTR address;
{
 USHORT id = ((struct Gadget *)address)->GadgetID;

 switch( id )
 {
   case BOOL1:
    strcpy( msg1, msg_buffer );
    MyText( main_wind->RPort, 225, 132, "1" );
    break;

   case BOOL2:
    strcpy( msg2, msg_buffer );
    MyText( main_wind->RPort, 225, 132, "2" );
    break;

   case BOOL3:
    strcpy( msg3, msg_buffer );
    MyText( main_wind->RPort, 225, 132, "3" );
    break;

   case PROP2:
    update_prop2();
    break;
 }

}


VOID  handle_main_newsize( window_ptr )
```

```
struct Window *window_ptr;
{
  setup_main_wind();
}



VOID close_text_window()
{
 struct IntuiMessage *mes;

 while( mes = (struct IntuiMessage *)GetMsg( text_wind->UserPort ) )
   ReplyMsg( mes );

 ClearMenuStrip( text_wind );
 CloseWindow( text_wind );
 text_wind = 0L;
}


VOID  handle_main_menu( code )
USHORT code;
{

  while ( code!=MENUNULL )
  {
     switch(MENUNUM( code ))
     {
         case 0:                    /* Project */
           switch(ITEMNUM( code ))
           {
               case 0:          /* open text window */
                 if( text_wind )
                 {             /* already open! */
                   DisplayBeep( main_scrn );
                 }
                 else           /* open it */
                 {
                   txt_nw.Screen = main_scrn;
                   if ( (text_wind = (struct Window *)OpenWindow(&txt_nw))\
                           == NULL) break;
                   SetMenuStrip( text_wind, text_menu );
                 }
                 break;

               case 1:          /* close text window */
                 if( text_wind )   /* don't try to close if !exist */
                  close_text_window();
                 break;

               case 2:                      /* odds and ends */
                 switch(SUBNUM( code ))
                 {
                    case 0:                    /* flash screen */
                      DisplayBeep( main_scrn );
                      break;

                    case 1:                    /* screen to back */
                      ScreenToBack( main_scrn );
                      break;
                 }
                 break;

               case 3:          /* quit */
                 damp_mop();
                 break;

           } /* end of switch(ITEMNUM( code )) */
           break;

         default:
           break;

     } /* end of switch(MENUNUM( code )) */

     code = ItemAddress( &main_menu, code )->NextSelect;

  }  /* end of while( code != MENUNULL ) */
```

```
}


VOID  handle_text_menu( code )
USHORT code;
{
  struct RastPort *rp = text_wind->RPort;
  static USHORT pen = 1;

  while ( code!=MENUNULL )
  {
     switch(MENUNUM( code ))
     {
         case 0:                    /* Draw */
           SetAPen( rp, pen );
           switch(ITEMNUM( code ))
           {
               case 0:
                 MyText( rp, 10, 20, msg1 );
                 break;

               case 1:
                 MyText( rp, 10, 30, msg2 );
                 break;

               case 2:
                 MyText( rp, 10, 40, msg3 );
                 break;
           }
           break;

         case 1:                    /* Erase */
           SetAPen( rp, 0 );
           switch(ITEMNUM( code ))
           {
               case 0:
                 MyText( rp, 10, 20, msg1 );
                 break;

               case 1:
                 MyText( rp, 10, 30, msg2 );
                 break;

               case 2:
                 MyText( rp, 10, 40, msg3 );
                 break;
           }
           break;

         case 2:                    /* Color */
           switch(ITEMNUM( code ))
           {
               case 0:
                 pen = 1;
                 break;

               case 1:
                 pen = 2;
                 break;

               case 2:
                 pen = 3;
                 break;

               case 3:    /* this is our 'do nothing' image choice */
                 break;

           }
           break;

         default:
           break;

     } /* end of switch(MENUNUM( code )) */

     code = ItemAddress( text_menu, code )->NextSelect;

  }  /* end of while( code != MENUNULL ) */
```

```
}


/*------------ IDCMP routines ------------*/

   /* this function altered for 3 */
VOID handle_main_messages()
{
  struct IntuiMessage  *message;
  SHORT                mx, my;
  static SHORT         mouse_moved;
  static BOOL          moving_prop1 = FALSE;

  mouse_moved = FALSE;

 /* As long as we have messages in the que, make local copies of appropriate
    data, reply, and then process accordingly */

  while( message=(struct IntuiMessage *)GetMsg( main_wind->UserPort ) )
  {
     ULONG  class = message->Class;
     USHORT code = message->Code;
     USHORT qualifier = message->Qualifier;
     APTR   address = message->IAddress;
     struct Window *window_ptr = message->IDCMPWindow;

     mx = message->MouseX;  /* Declared above. Must be local to entire func */
     my = message->MouseY;  /* if we use the mouse move collection technique */

     ReplyMsg( message );
     switch( class )
     {
        case MOUSEMOVE:
          mouse_moved = TRUE;
    /*    update_coords( mx, my ); */ /* <-uncomment this for 'real time' updates */
    /*    if( moving_prop1 ) update_color(); */ /* likewise */
          break;

        case MOUSEBUTTONS:
          handle_main_mousebuttons( code );
          break;

        case CLOSEWINDOW:
          damp_mop();
          break;

        case RAWKEY:
          handle_main_rawkey( code, qualifier );
          break;

        case MENUPICK:
          handle_main_menu( code );
          break;

        case GADGETDOWN:
          handle_main_gadgetdown( address );
          if( ((struct Gadget *)address)->GadgetID == PROP1 )
           moving_prop1 = TRUE;
          break;

        case GADGETUP:
          moving_prop1 = FALSE;    /* prop1 is RELVERIFY */
          handle_main_gadgetup( address );
          break;

        case NEWSIZE:
          handle_main_newsize( window_ptr );
          break;

        /* we could add other choices here as well */
     }

  }        /* end of while(message..) */

  if ( mouse_moved ) update_coords( mx, my );

  if ( mouse_moved && moving_prop1 ) update_color();

} /* end of handle_main_messages() */



VOID handle_text_messages()
{
  struct IntuiMessage  *message;
  SHORT                mx, my;
  static SHORT         mouse_moved;


  mouse_moved = FALSE;

 /* As long as we have messages in the que, make local copies of appropriate
    data, reply, and then process accordingly */

  while( message=(struct IntuiMessage *)GetMsg( text_wind->UserPort ) )
  {
     ULONG  class = message->Class;
     USHORT code = message->Code;
     USHORT qualifier = message->Qualifier;
     APTR   address = message->IAddress;
     struct Window *window_ptr = message->IDCMPWindow;

     mx = message->MouseX;  /* Declared above. Must be local to entire func */
     my = message->MouseY;  /* if we use the mouse move collection technique */

     ReplyMsg( message );
     switch( class )
     {
        case MOUSEMOVE:
          mouse_moved = TRUE;
          break;

        case MOUSEBUTTONS:
          break;

        case CLOSEWINDOW:
          close_text_window();
          return;
          break;

        case RAWKEY:
          break;

        case MENUPICK:
          handle_text_menu( code );
          break;

        case GADGETDOWN:
          break;

        case GADGETUP:
          break;

        case NEWSIZE:
          break;

        /* we could add other choices here as well */
     }

  }    /* end of while(message..) */

} /* end of handle_text_messages() */
```

•AC•

AC's Back Issue Index

❦ Vol. 1 No. 1 Premiere, 1986
Highlights include:
"Super Spheres", An ABasic Graphics Program, by Kelly Kauffman
"Date Virus", by J. Foust
"EZ-Term", An ABasic terminal program, by Kelly Kauffman
"Inside CLI", A guided insight into AmigaDos, by G. Musser

❦ Vol. 1 No. 2 1986
Highlights include:
"Inside CLI: Part Two", Investigating CLI & ED, by G. Musser
"Online and the CTS Fabite 2424 ADH Modem", by J. Foust

❦ Vol. 1 No. 3 1986
Highlights include:
"Forth!", A tutorial
"Deluxe Draw!!", An AmigaBASIC art program, by R. Wirch
"AmigaBASIC", A beginner's tutorial
"Inside CLI: Part 3", by George Musser

❦ Vol. 1 No. 4 1986
Highlights include:
"Build Your Own 5 1/4" Drive Connector", by E. Viveiros
"AmigaBASIC Tips", by Rich Wirch
"Scrimper: Part One", A program to print Amiga screen, by P. Kivolowitz

❦ Vol. 1 No. 5 1986
Highlights include:
"The HSI to RGB Conversion Tool", Color manipulation in BASIC, by S. Pietrowicz
"Scrimper: Part Two" by Perry Kivolowitz
"Building Tools", by Daniel Kary

❦ Vol. 1 No. 6 1986
Highlights include:
"Mailing List", A basic mail list program, by Kelly Kauffman
"Pointer Image Editor", by Stephen Pietrowicz
"Scrimper: Part Three", by Perry Kivolowitz

❦ Vol. 1 No. 7 1986
Highlights include:
"Try 3-D", An introduction to 3-D graphics, by Jim Meadows
"Window Requesters in Amiga Basic", by Steve Michel
"I C What I Think", A few C graphic progs, by R. Peterson
"Linking C Programs with Assembler Routines", by G. Hull

❦ Vol. 1 No. 8 1986
Highlights include:
"Using Fonts from AmigaBASIC", by Tim Jones
"A Tale of Three EMACS", by Steve Poling
".bmap File Reader in AmigaBASIC", by T. Jones

❦ Vol. 1 No. 9 1986
Highlights include:
"Starting Your Own Amiga-Related Business", by W. Simpson
"Keep Track of Your Business Usage for Taxes", by J. Kummer
"Using Fonts from AmigaBASIC: Part Two", by Tim Jones
"68000 Macros On The Amiga", by G. Hull

❦ Vol. 2 No. 1, January 1987
Highlights include:
"AmigaBASIC Titles", by Bryan Catley
"A Public Domain Modula-2 System", by Warren Block
"One Drive Compile", by Douglas Lovell

❦ Vol. 2 No. 2, February 1987
Highlights include:
"The Modem", Efforts of a BBS sysop, by Joseph L. Rothman
"The ACO Project....Graphic Teleconferencing on the Amiga", by S. R. Pietrowicz
"A Disk Librarian In AmigaBASIC", by John Kennan
"Creating And Using Amiga Workbench Icons", by C. Hansel

❦ Vol. 2 No. 3, March 1987
Highlights include:
"Subscripts and Superscripts in AmigaBASIC", by I. Smith
"AmigaTrix", Amiga shortcuts, by W. Block
"Intuition Gadgets", by Harriet Maybeck Tolly
"Forth!", Put sound in your Forth programs, by Jon Bryan

❦ Vol. 2 No. 4, April 1987
Highlights include:
"Jim Sachs Interview", by S. Hull
"The Mouse That Got Restored", by Jerry Hull and Bob Rhode
"Secrets of Screen Dumps", by Natkun Okun
"Amigatrix II", More Amiga shortcuts, by Warren Block

❦ Vol. 2 No. 5, May 1987
Highlights include:
"Programming in 68000 Assembly Language", by C. Martin
"Using FutureSound with AmigaBASIC", Programming utility with real digitized STEREO, by J. Meadows
"Waveform Workshop In AmigaBASIC", by J. Shields
"Intuition Gadgets: Part II", by H. MaybeckTolly

❦ Vol. 2 No. 6, June 1987
Highlights include:
"Modula-2 AmigaDOS Utilities", by S. Faiwiszewski
"Amiga Expansion Peripherals", by J. Foust
"What You Should Know Before Choosing an Amiga 1000 Expansion Device", by S. Grant

❦ Vol. 2 No. 7, July 1987
Highlights include:
"Video and Your Amiga", by Oran Sands
"Quality Video from a Quality Computer", by O. Sands
"All About Printer Drivers", by Richard Bielak
"68000 Assembly Language", by Chris Martin

❦ Vol. 2 No. 8, August 1987
Highlights include:
"Modula-2 Programming"
"Assembly Language"
"Disk-2-Disk", by Matthew Leeds
"Skinny C Programs", by Robert Riemersma, Jr.

❦ Vol. 2 No. 9, September 1987
Highlights include:
"Modula-2 Programming", Raw console dev. events, by S Faiwiszewski
"AmigaBASIC Patterns", by Brian Catley
"Programming with Soundscape", by T. Fay

❦ Vol. 2 No. 10, October 1987
Highlights include:
"Max Headroom and the Amiga", by John Foust
"Amiga Artist: Brian Williams", by John Foust
"All About On-line Conferencing", by Richard Rae
"Fast File I/O with Modula-2", by Steve Faiwiszewski

❦ Vol. 2 No. 11, November 1987
Highlights include:
"Modula-2 Programming", Devices, I/O, & serial port, by S. Faiwiszewski
"68000 Assembly Language", by Chris Martin
"The AMICUS Network", by John Foust
"C Animation: Part II", by Mike Swinger

❦ Vol. 2 No. 12, December 1987
Highlights include:
"CLI Arguments in C", by Paul Castonguay
"MIDI Interface Adaptor", by Barry Massoni
"Modula-2", Command line calculator, by S. Faiwiszewski
"Animation for C Rookies: Part III", by M. Swinger

❦ Vol. 3 No. 1, January 1988
Highlights include:
"C Animation: Part IV", by Michael Swinger
"Forth", Sorting out Amiga CHIP and FAST memory, by John Bryan
"The Big Picture", CLI system calls and manipulating disk files, by Warren Ring
"Modula-2 Programming", by S. Faiwiszewski

❦ Vol. 3 No. 2, February 1988
Highlights include:
"Laser Light Shows with the Amiga", by Patrick Murphy
"Photo Quality Reproduction with the Amiga and Digi-View", by Stephen Lebans
"68000 Assembler Language Programming", by Chris Martin
"AiRT", Icon-based program language, by S. Faiwiszewski

❦ Vol. 3 No. 3, March 1988
Highlights include:
"The Hidden Power of CLI Batch File Processing", by J. Rothman
"Perry Kivolowitz Interviewed", by Ed Bercovitz
"PAL Help", A1000 expansion reliability, by Perry Kivolowitz
"Amiga Serial Port and MIDI Compatibility for Your A1000", by L. Ritter and G. Rentz

❦ Vol. 3 No. 4, April 1988
Highlights include:
"Writing A SoundScape Patch Librarian", by T. Fay
"Upgrade Your A1000 to A500/2000 Audio Power", by H. Bassen
"Gels in Multi-Forth", by John Bushakra
"The Big Picture, Part II: Unified Field Theory", by W. Ring

❦ Vol. 3 No. 5, May 1988
Highlights include:
"Interactive Startup Sequence", by Udo Pernisz
"The Companion", Amiga's event-handling capability, by P.Gosselin
"The Big Picture, Unified Field Theory: Part III", by W. Ring
"Modula-2", Termination modules for Benchmark and TDI compilers, by Steve Faiwiszewski

❦ Vol. 3 No. 6, June 1988
Highlights include:
"Reassigning Workbench Disks", by John Kennan
"An IFF Reader in Multi-Forth", by Warren Block
"Basic Directory Service Program", Programming alternative to the GimmeeZeroZero, by Bryan Catley

❦ Vol. 3 No. 7, July 1988
Highlights include:
"Roll Those Presses!", The dandy, demanding world of desktop publishing, by Barney Schwartz
"Linked Lists in C", by W. E. Gammill
"C Notes from the C Group", The unknown "C" of basic object and data types, by Stephen Kemp

❦ Vol. 3 No. 8, August 1988
Highlights include:
"The Developing Amiga", A gaggle of great programming tools, by Stephen R. Pietrowicz
"Modula-2 Programming", Libraries and the FFP and IEE math routines, by Steve Faiwiszewski
"Amiga Interface for Blind Users", by Carl W. Mann
"Tumblin' Tots", Assembly language program, by D. Ashley

❦ Vol. 3 No. 9, September 1988
Highlights include:
"Speeding Up Your System", Floppy disk caching, by Tony Preston
"Computer-Aided Instruction", Authoring system in AmigaBASIC, by Paul Castonguay
"Gels in Multi-Forth, Part II: Screenplay", by John Bushakra

❦ Vol. 3 No. 10, October 1988
Highlights include:
"The Command Line:NEWCLI: A painless way to create a new console window", by Rich Falconburg
"Bob and Ray Meet Frankenstein", Create, animate, and metamorphose graphics objects in AmigaBASIC, by R. D'Asto
"HAM & AmigaBASIC", Pack your AmigaBASIC progs with many of the Amiga's 4096 shades, by Bryan Catley

❦ Vol. 3 No. 11, November 1988
Highlights include:
"Structures in C", by Paul Castonguay
"On The Crafting of Programs", Speed up your progs, by D. Hankins
"BASIC Linker", Combine individual routines from your program library to create an executable program, by B. Zupke

❦ Vol. 3 No. 12, December 1988
Highlights include:
"Converting Patch Librarian Files", by Phil Saunders
"Easy Menus in JForth", by Phil Burk
"C Notes From The C Group: Program or function control coding", by Stephen Kemp

❦ Vol. 4 No. 1, January 1989
Highlights include:
"Scrolling Through SuperBitMap Windows", by Read Predmore
"Sync Tips: Dot crawl, the Amiga and composite video devices", by Oran J. Sands
"Pointers, Function Pointers, and Pointer Declarations in C", by Forest W. Arnold

❦ Vol. 4 No. 2, February 1989
Highlights include:
"Sync Tips: Getting inside the genlock",by Oran Sands
"On the Crafting of Programs: A common standard for C programming?", by D J. Hankins
"An Introduction to ARexx programming", by Steve Faiwizewski

❦ Vol. 4 No. 3, March 1989
Highlights include:
"Fractal Fundamentals", by Paul Castonguay
"Image Processing With Photosynthesis", by Gerald Hull
"Benchmark 1: Fully Utilizing The MC68881", Part I: Turbocharging the savage benchmark, by Read Predmore
"Breaking the Bmap Barrier", Streamline AmigaBASIC library access with Quick—Lib, by Robert D'Asto

❦ Vol. 4 No. 4, April 1989
Highlights include:
"Adding the Not-So-Hard Disk", by J P. Twardy
"The Max Hard Drive Kit", A hard drive installation project, using Palomax's Max kit, by Donald W. Morgan
"Sync Tips: A clearer picture of video and computer resolutions", by Oran J. Sands

❦ Vol. 4 No. 5, May 1989
Highlights include:
"Building Your Own Stereo Digitizer", by Andre Theberge
"MIDI Out Interface", by Br. Seraphim Winslow
"Digitized Sounds in Modula-2", by Len A. White
"Sync Tips: The secrets hidden beneath the flicker mode", by Oran J. Sands

❦ Vol. 4 No. 6, June 1989
Highlights include:
"At Your Request: Design your own requesters in AmigaBASIC", by John F. Weiderhirn
"Exploring Amiga Disk Structures", by David Martin
"Diskless Compile in C", by Chuck Raudonis

❦ Vol. 4 No. 7, July 1989
Highlights include:
"Adapting Analog Joysticks to the Amiga", by David Kinzer
"Using Coordinate Systems: Part II of the Fractals series addresses the basis of computer graphics", by P.Castonguay

❦ Vol. 4 No. 8, August 1989
Highlights include:
"Getting Started in Video", by Richard Starr
"Executing Batch Files in AmigaBASIC", by Mark Aydellotte
"Building a Better String Gadget", by John Bushakra

❦ Vol. 4 No. 9, September 1989
Highlights include:
"Digitizing Color Slides And Negatives on the Amiga", by Ron Gull
"Improving Your Graphics Programming", by R. Martin
"Cell Animation In Modula-2", by Nicholas Cirasella
"More Requesters In AmigaBASIC", by John R. Wiederhirn

❦ Vol. 4 No. 10, October 1989
Highlights include:
"Better TrackMouse", A true one-handed trackball mouse, by Robert Katz
"APL & The Amiga", by Henry Lippert
"More requesters in AmigaBASIC", by John Wiederhirn
"Glatt's Gadgets", Adding gadgets in Assembly, by Jeff Glatt

❦ Vol. 4 No. 11, November 1989
Highlights Include:
"The Amiga Hardware Interface", by John Iovine
"APL & The Amiga, Part II", by Henry Lippert
"64 Colors In AmigaBASIC", by Bryan Catley
"Fast Fractals ", Generate Madelbrot Fractals at lightning speed, by Hugo M.H. Lyppens

❦ Vol. 4 No. 12, December 1989
Highlights Include:
"The MIDI Must Go Thru", by Br. Seraphim Winslow
"View From the Inside: Bars&Pipes", A tour of Blue Ribbon Bakery's music program, by Melissa Jordan Grey
"ARexx Part II", by Steve Gillmor
"A CLI Beginner's Questions Answered", by Mike Morrison

❦ Vol. 5 No. 1, January 1990
Highlights include:
"Animation? BASICally!", Using Cell animation in AmigaBASIC, by Mike Morrison
"Menu Builder", Building menus with Intuition, by T. Preston
"Facing the CLI", Disk structures and startup-sequences, by Mike Morrison

❦ Vol. 5 No. 2, February 1990
Highlights include:
"A Beginner's Guide to Desktop Publishing On The Amiga", by John Steiner
"Resizing the shell/CLI Window", by William A. Jones
"Call Assembly Language from BASIC", by Martin F. Combs
"An Amiga Conundrum", An AmigaBASIC program for a puzzle-like game, by David Senger

❦ Vol. 5 No. 3, March 1990
Highlights include:
"Screen Aid", A quick remedy to prolong the life of your monitor, by Bryan Catley
"The Other Guys' Synthia Professional", review by David Duberman
"Passport's Master Tracks Pro vs. Blue Ribbon Bakery's Bars&Pipes", by Ben Means

❦ Vol. 5 No. 4, April 1990
Highlights include:
"Bridging the 3.5" Chasm", Making Amiga 3.5" drives compatible with IBM 3.5" drives, by Karl D. Belsom
"Bridgeboard Q & A", by Marion Deland
"Handling Gadget & Mouse IntuiEvents", More gadgets in Assembly, by Jeff Glatt
"Ham Bones", Programming in HAM mode in AmigaBASIC, by Robert D'Asto

❦ Vol. 5 No. 5 May 1990
Highlights include:
"Commodore's Amiga 3000", preview
"Newtek's Video Toaster", preview
"Do It By Remote", Building an Amiga-operated remote controller for your home, by Andre Theberge
"Rounding Off Your Numbers", by Sedgewick Simons Jr.

❦ Vol. 5 No. 6, June 1990
Highlights include:
"Convergence", Part 5 of the Fractal series, by P. Castonguay
"C++: An introduction to object-oriented Amiga programming", by Scott B. Steinman
"APL and The Amiga: Primitive Functions and Their Execution", by Henry T. Lippert

❦ Vol. 5 No. 7, July 1990
Highlights include:
"Apples, Oranges, and MIPS: 68030-based Accelerators For The Amiga 2000", by Ernest P. Viveiros, Jr.
"Poor Man's Spreadsheet", A simple spreadsheet program that demonstrates manipulating arrays, by Gerry L. Penrose
"Crunchy Frog II", by Jim Fiore
"Getting to the Point: Custom Intuition Pointers In AmigaBASIC", by Robert D'Asto

❦ Vol. 5 No. 8, August 1990
Highlights include:
"Mimetics' FrameBuffer", review by Lonnie Watson
"Desktop Video in a University Setting", The Amiga at work at North Dakota State University, by John Steiner
"Title Screens That Shine: Adding light sources with DeluxePaint III", by Frank McMahon

❦ Vol. 5 No. 9, September 1990
Highlights include:
"Programming In C on a Floppy System", Yes even a stock A500 with a 512K RAM expander, by Paul MIller
"Time Out", Accessing the Amiga's system timer device via Modula-2, by Mark Cashman
"Voice-Controlled Joystick", by John Iovine
"Gradient Color Dithering on the Amiga Made Easy", by Francis Gardino

❦ Vol. 5 No. 10, October 1990
Highlights include:
"Notes on PostScript Printing with Dr. T's Copyist", by Hal Belden
"CAD Overview: X-CAD Designer, X-CAD Professional, IntroCAD Plus, Aegis Draw 2000, UltraDesign", by Douglas Bullard
"Sound Tools for the Amiga", Sunrize Industries' Perfect Sound and MichTron's Master Sound, reviews by M. Kevelson
"Audio Illusion", Produce fascinating auditory illusions on your Amiga, by Craig Zupke

❦ Vol. 5 No. 11, November 1990
Highlights include:
"Getting A Lot For A Little", A comparison of the available Amiga archive programs, by Greg Epley
"High Density Media Comes to the Amiga", Applied Engineering's AEHD drive, review by John Steiner
"The KCS Power PC Board", If you have an Amiga 500, and need IBM PC/XT software compatibility, the KCS Power PC Board can help, by Ernest P. Viveiros, Jr.

❦ Vol. 5 No. 12, December 1990
Highlights include:
"Information X-Change", Keeping up to date on the latest news via hardware, software, and cable TV, by Rick Broida
"Feeding The Memory Monster", the ICD AdRAM 540 and AdRAM 560D, review by Ernest P. Viveiros, Jr.
"Making A Name For Yourself", Creating logos on the Amiga, by Frank McMahon

❦ Vol. 6 No. 1, January 1991
Highlights include:
"Electronic Color Splitter", an inexpensive way to grab images off video sources, by Greg Epley
"The Animation Studio", Disney's classic approach in a character animation program, by Frank McMahon
"Forensic Animation", the Amiga helps out in the courtroom, by Andrew Lichtman

❦Vol. 6 No. 2, February 1991
Highlights include:
"Xetec's CDx-650", CD-ROM technology for the Amiga, by Lonnie Watson
"More Ports For Your Amiga", Building an I/O Expansion Board, by Jeff Lavin
"Medley", A look at different types of music software available, by Phil Saunders

❦ Vol. 6 No. 3, March 1991
Highlights include:
"NewTek's Video Toaster: A New Era In Amiga Video", a complete tour of the Video Toaster, by Frank McMahon
"Ultrasonic Ranging System", the sonar system project continues with the assembly of an ultrasonic ranging system, by John Iovine
"Writing Faster Assembly Language", the discussion on how to speed up programs with assembly is completed, by Martin F. Combs

❦ Vol. 6 No. 4, April 1991
Highlights Include:
"DCTV", manipulate millions of colors in real time, by Frank McMahon
"Lauren in Disguise", workaround to DeluxPaint III's lack of HAM support, by Merrill Callaway
"Medley", Learn how to save your setup information with your sequences so the computer will automatically configure your synthesizer, by Phil Saunders
Plus, a special feature on Graphic Word Processors

❦ Vol. 6 No. 5, May 1991
Highlights include:
"The Big Three in DTP," A desktop publishing overview by Richard Mataka
"The Amiga Desktop Publisher's Guide to Service Bureaus," Tips and guidelines for Amiga users who require professional quality output by John Steiner
"M.A.S.T.'s Parallel Port SCSI Adapter," An inexpensive way to attach a hard disk to your A500 by Dan Michaelson
"All in One," a smorgasbord of programs for the beginner by Kim Schaffer

Amazing Disks

1

AC V3.8 and V3.9

Gels In MultiForth Parts I & II: Learn how to use Gels in MultiForth. Author: John Bushakra

FFP & IEEE: An Example of using FFP & IEEE math routines in Modula-2. Author: Steve Faiwiszewski

CAI: A Computer Aided Instruction program with editor written in AmigaBASIC. Author: Paul Castonguay

Tumblin' Tots: A complete game written in Assembly language. Save the falling babies in this game. Author: David Ashley

VGad: A gadget editor that allows you to easily create gadget. The program then generates C code that you can use in your own programs. Author: Stephen Vermeulen

MenuEd: A menu editor that allows you to easily create menus. The program then generates C code that you can use in your own programs. Author: David Pehrson

Bspread: A powerful spread sheet program written in AmigaBASIC. Author: Bryan Cately

2

AC V4.3 and V4.4

Fractals Part I: An introduction to the basics of fractals with examples in AmigaBASIC, True BASIC, and C. Author: Paul Castonguay

Shared Libraries: C source and executable code that shows the use of shared libraries. Author: John Baez

MultiSort: Sorting and intertask communication in Modula-2. Author: Steve Faiwiszewski

Double Playfield: Shows how to use dual playfields in AmigaBASIC. Author: Robert D'Asto

'881 Math Part I: Programming the 68881 math coprocessor chip in C. Author: Read Predmore

Args: Passing arguments to an AmigaBASIC program from the CLI. Author: Brian Zupke

3

AC V4.5 and V4.6

Digitized Sound: Using the Audio.device to play digitized sounds in Modula-2. Author: Len A. White

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At Your Request: Using the system-supplied requestors from AmigaBASIC. Author: John F. Weiderhirn

Insta Sound: Tapping sound from AmigaBASIC using the Wave command. Author: Greg Stringfellow

MIDI Out: A MIDI program that you can expand upon. Written in C. Author: Br. Seraphim Winslow

Diskless Compiler: Setting up a compiler environment that doesn't need floppies. Author: Chuck Raudonis

4

AC V4.7 and V4.8

Fractals Part II: Part II on fractals and graphics on the Amiga in AmigaBASIC and True BASIC. Author: Paul Castonguay

Analog Joysticks: The code for using analog joysticks on the Amiga. Written in C. Author: David Kinzer

C Notes: A small program to search a file for a specific string in C. Author: Stephen Kemp

Better String Gadgets: How to tap the power of string gadgets in C. Author: John Bushakra

On Your Alert: Using the system's alerts from AmigaBASIC. Author: John F. Wiederhirn

Batch Files: Executing batch files from AmigaBASIC. Author: Mark Aydellotte

C Notes: The beginning of a utility program in C. Author: Stephen Kemp

5

AC V4.9

Memory Squares: Test your memory with this AmigaBASIC game. Author: Mike Morrison

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Cell Animation: Using cell animation in Modula-2. Author: Nicholas Cirasella

Improving Graphics: Improve the way your program looks no matter what screen it opens on. In C. Author: Richard Martin

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1D_Cells: A program that simulates a one-dimensional cellular automata. Author: Russell Wallace

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ShowILBM: A program that displays lo-res, hi-res, interlace and HAM IFF pictures. Author: Russell Wallace

Labyrinth_II: Roll playing text adventure game. Author: Russell Wallace

Most: Text file reader that will display one or more files. The program will automatically format the text for you. Author: Russell Wallace

Terminator: A virus protection program. Author: Russell Wallace

6

AC V4.10 and V4.11

Typing Tutor: A program written in AmigaBASIC that will help you improve your typing. Author: Mike Morrison

Glatt's Gadgets: Using gadgets in Assembly language. Author: Jeff Glatt

Function Evaluator: A program that accepts mathamatical functions and evaluates them. Written in C. Author: Randy Finch

Fractals: Part III: AmigaBASIC code shows you how to save/load pictures to disk. Author: Paul Castonguay

More Requestors: Using system calls in AmigaBASIC to build requestors. Author: John Wiederhirn

Multi-Forth: Implementing the ARP library from Forth. Author: Lonnie A. Watson

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Fast Pics: Re-writing the pixel drawing routine in Assembly language for speed. Author: Scott Steinman

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Fast Fractals: A fast fractal program written in C with Assembly language subroutines. Author: Hugo M. H. Lyppens

Multitasking in Fortran: All the hard work is done here so you can multitask in Fortran. Author: Jim Locker

7

AC V4.12 and V5.1

Arexx Part II: Information on how to set up your own ARexx programs with examples. Author: Steve Gilmor

Leggo My LOGO: A Logo program that generates a Christmas tree with decorations. Author: Mike Morrison

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Source code and executable programs included for all articles printed in *Amazing Computing*.

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Author: Mike Morrison

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Dual Demo: How to use dual playfields to make your own arcade games. Written in C. Author: Thomas Eshelman.

Scanning the Screen: Part four in the fractals series. This article covers drawing to the screen. In AmigaBASIC and True BASIC. Author: Paul Castonguay.

C Notes: Recursive functions in C. Author: Stephen Kemp.

8

AC V5.2 and V5.3

Dynamic Memory!: Flexible string gadget requester using dynamic memory allocation. Author: Randy Finch.

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C Notes From the C Group: Writing functions that accept a variable number of arguments. Author: Stephen Kemp

Screen Saver: A quick remedy to prolong the life of your monitor. Author: Bryan Catley

---

9

AC V5.4 and V5.5

Bridging The 3.5" Chasm: Making Amiga 3.5" drives compatible with IBM 3.5" drives. Author: Karl D. Belsom.

Ham Bone: A neat program that illustrates programming in HAM mode. Author: Robert D'Asto.

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---

10

AC V5.6 and V5.7

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C Notes: Doing linked list and doubly linked lists in C.
Author: Stephen Kemp

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Author: Mark Cashman.

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Author: Robert D'Asto

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Author: Jim Fiore

Synchronicity: Right and left brain lateralization.
Author: John Iovine

C Notes From the C Group: Doubly linked lists revisited.
Author: Stephen Kemp

Poor Man's Spreadsheet: A simple spreadsheet program that demonstrates manipulating arrays.
Author: Gerry L. Penrose.

11

AC V5.8, V5.9 and AC V5.10

Fully Utilizing the 68881 Math Coprocessor Part III: Timings and Turbo_Pixel Function. Author: Read Predmore.

C Notes From the C Group 5.8 & 5.10: Functions supporting doubly linked lists, and a program that wil examine an archive file and remove any files that have been extracted.
Author: Stephen Kemp

Time Out!: Accessing the Amiga's system timer device via Modula-2. Author: Mark Cashman

Stock-Portfolio: A program to organize and track investments, music libraries, mailing lists, etc. in AmigaBASIC.
Author: G. L. Penrose.

CygCC: An ARexx programming tutorial.
Author: Duncan Thomson.

Programming in C on a Floppy System: Begin to develop programs in C with just one megabyte of RAM. Author: Paul Miller.

Koch Flakes: Using the preprocessor to organize your programming. Author: Paul Castonguay

AudioIllusion: Experience an amazing audio illusion generated on the Amiga in Benchmark Modula-2.
Author: Craig Zupke

Pictures: IFF pictures from past Amazing Computing issues.

12

AC V5.11, V5.12 & V6.1

Keyboard Input In Assembly: Fourth in a series of Assembly 68000 programming tutorials. Author: Jeff Glatt.

A Shared Library for Matrix Manipulations: Creating a shared library can be easy. Author: Randy Finch.

C Notes From The C Group: A discussion on cryptography.
Author: Stephen Kemp

ZoomBox: Attaches a zoom box to an Intuition window and allows the user to toggle the window's size and its position. Author: John Leonard

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13

AC V6.2 and V6.3

C Notes 6.2: A reminder program to display messages. Author: Stephen Kemp

More Ports For Your Amiga: Files to accompany article. Author: Jeff Lavin

Ultra Sonic Ranging System: BASIC Sonar Ranging program.
Author: John Iovine

Writing Faster Assembly: Continuing the discussion of speeding up programs. Author: Martin F. Combs

C Notes 6.3: Working with functions. Author: Stephen Kemp

14

AC V6.4 and V6.5

Blitz Basic: Here are some examples created with M.A.S.T.'s integrated BASIC environment. Author: Paul Castonguay

Creative And Time-Saving Techniques: Enchancing and fine-tuning images through definition. Part of the Fractal series.
Author: Paul Castonguay.

Practal Modula-2 Buffered Disk I/O: Buffer file input and output to improve disk accessing speed. Author: Michal Todorovic.

For PDS orders, please use form on page 95.

The Fred Fish Collection

Due to the increasing size of the Fred Fish Collection, only the latest disks are represented here. For a complete list of all AC, AMICUS, and Fred Fish Disks, cataloged and cross-referenced for your convenience, please consult the current *AC's Guide To The Commodore Amiga* available at your local Amazing Dealer.

Fred Fish Disk 430

Lotto	Small lotto number selector with C source. Author: Timm Martin
Pointer	Use the SID sleepy pointer in your programs. Includes C source, a sample program, and modules that you can plug in to your C programs. Author: Timm Martin
SculptTools	Programs to create objects for use in Sculpt 4D. Includes Brush_4D to convert IFF brushes to objects in full color with HAM and EHB support and wrap to various shapes (update to version on disk 361), Fractal_4d to create fractal mountains with various coloring from brush, checkers or based on altitude, and Spiral_4d to create a variety of objects based around tubes and helixes. Binary only. Author: Bruce Thomson
SmartFields	SmartFields is a replacement for Intuition string gadgets. It allows you to incorporate into your Amiga C programs the powerful editing capabilities often found in mini- computers. Includes full C source and documentation. Author: Timm Martin.

Fred Fish Disk 431

A68Kex	Twelve examples demonstrating the use of Charlie Gibbs A68K assembler. Over a quarter megabyte of assembly source code. Author: E. Lenz
AdvTemplates	A collection of PD spreadsheet templates for business and law, originally intended for Lotus 123 on IBM PC's. They have been transfered to the Amiga, loaded into Gold Disk's The Advantage, and saved as native Advantage files. Requires Advantage V1.1 or higher. Author: Amiga port by Michal Todorovic
CheetSheet	A compilation of cheats, hints, backdoors, helpful bugs, passwords, codes, solves, and walkthroughs for over 150 Amiga games. January 1st, 1991 edition. Author: Mark Shnayer
EZAsm	Combines parts of the "C" language with 68000 assembly, giving it the "feel" of a higher level language. Supports all 1.3 functions. Uses braces and "else" like "C". Resulting code is optimized as much as possible. Takes source file you create and outputs a .asm file. Includes example source and executable files. Version 1.31, an update to version 1.3 on disk 421. Binary only. Author: Joe Siebenmann

Fred Fish Disk 432

APalAsm	A Programmable Array Logic (PAL) program based on an old MMI Fortran IV program from the 'PAL Handbook' Second Edition and Third Edition by MMI. This Version (1.00) is completely rewritten for Fortran 77. The outputs produced are sent to separate files instead of the screen. There are plenty of example PAL files to test, inspect, or just to learn what PAL's are all about. The Fortran source is included with the instructions to compile using AC/Fortran version 2.3. Author: Bob Metzler
Badger	Reminder program for your startup-sequence. Badger will open a window and display any important events that are 'due'. Badger will not bother you if there is nothing to report. Events are entered via menu and prompts. This is version 2.01e, an update to the version on disk 365, and includes many new features. Shareware, binary only. Author: George Kerber
Conquest	Lore of Conquest is a war game similar in concept to the board game Risk. You are the lord of an entire world, destined to rule the galaxy. Some worlds are virgin fruits, ready for you to colonize. Some worlds have natives who do not wish to accept your rule, these you must conquer for they will yield more valuable resources. As you claim the galaxy you will find, you are not the only one extending your dominion. This is a two-player game, so be prepared to defend yourself and take what is yours! Version 1.2, binary only, shareware. Author: Michael Bryant
FifoDev	FIFO: is like PIPE: but is based on fifo.library rather than its own implementation. Fifo.library is a general fifo library implementation that supports named fifos, writing to a fifo from a hardware exception, multiple readers on a fifo with each getting the same data stream, efficient reading, and automatic or manual flow control. Programs that require non-blocking IO can access one side of a FIFO: connection via the fifo.library instead of the FIFO: device. Includes some source. Author: Matt Dillon
Reader	A program to scan a word list to locate which words can be made from the letters given. Allows matching of words by length and by giving the letters known, ie. m.t.h for the word MATCH. Great for word games and crosswords. Results output to screen and a RAM: based file. The word list is in ascii and so can be edited if desired. New words can be added and it could be used for different languages if required. Supplied with over 24,200 words (mostly English spellings). Version 1.0, includes source. Author: Gary Brittain
SBackup	Programmers utility to assist in maintaining old versions of source code. SBackup maintains 2-99 old versions in any location desired. Version 1.00e, binary only. Author: George Kerber
TMonth	TMonth will execute any program the first time it's executed each month. Very useful, for example, to execute the ATOM- CLOCK program to set your clock each month. Version 1.0f, binary only. Author: George Kerber
Whence	Whence will locate any program/file in your current path. Similar to the the UNIX whence command. Version 1.0, binary only. Author: George Kerber

Fred Fish Disk 433

DiskPrint	Prints labels for 3.5" disks, primarily for PD library disks. Label data files can be loaded into memory so labels for special disks are available without having to type anything in or without having to wait for AmigaDOS to read in the full directory. This is version 2.3.5, an update to version 2.3e on disk 411. Shareware, binary only. Author: Jan Geissler
Gwin	GWIN or Graphics WINdow is an integrated collection of graphics routines callable from C. These routines make it easy to create sophisticated graphics programs in the C environment. One line calls give you a custom screen (ten types available), menu items, requestors, text, circles, polygons, etc. GWIN is a two dimensional floating point graphics system with conversion between world and screen coordinates. GWIN includes built in clipping that may be turned off for speed. Use of color and XOR operations are greatly simplified. Many examples of the use of GWIN are included in an examples directory, including a line/bar graph program, geographic mapping program, SPICE 2G.6 graphics post processor, and others. Extensive documentation is included. This is version 1.1, an update to version 1.0 on disk 322, recompiled to be compatible with MANX Aztec C Release 5. Author: Howard C. Anderson.
SysInfo	A program which reports interesting information about the configuration of your machine, including some speed comparisons with other configurations, versions of the OS software, etc. Version 1.98, an update to version 1.94 on disk 420. Binary only. Author: Nic Wilson

Fred Fish Disk 434

Backup	Backup and Restore allow you to backup any directory tree with optional compression, and later extract all or part of the tree. The protection, date, and file comment are saved with each file. This is version 2.06, an update to version 2.04 on disk 258. Includes source. Author: Matt Dillon
DynaCADD	Part 1 of a two part demo distribution of DynaCADD from Ditek International. DynaCADD is a professional 2D and 3D CAD package. This demo is fully functional except for disabled save and export functions. Requires a system with 68020/68030 and a 68881/68882 math processor. This disk contains all the files necessary to recreate the DynaCADD demo disk number 1. The files for demo disk number 2 can be found on library disk number 435. This is version 1.84, binary only. Author: Ditek International
GMC	A console handler with command line editing and function key support. GMC provides extended command line editing, function key assignment in four levels, extended command line history, online help for functions in the handler, and an iconify function. Also includes an output buffer (dump to printer and window), filename completer, script function, undo function, prompt beeper, pathname in window title, close gadget for KS 2.0, etc. This is version 9.8, an update to version 9.6 on disk 398. Shareware, binary only. Author: Goetz Mueller
TypingTutor	A simple typing tutor program which measures your typing speed and adjusts the level of difficulty accordingly. Shareware, binary only. Author: William Jordan

Fred Fish Disk 435

DeluxeBeep	A little program that uses the exec SetFunction call to play a sound sample of your choice whenever a program calls the Intuition DisplayBeep routine. Includes source and instructions on how to install your own sounds. Author: Jan van den Baard
DynaCADD	Part 2 of a two part demo distribution of DynaCADD from Ditek International. DynaCADD is a professional 2D and 3D CAD package. This demo is fully functional except for disabled save and export functions. Requires a system with 68020/68030 and a 68881/68882 math processor. This disk contains all the files necessary to recreate the DynaCADD demo disk number 2. The files for demo disk number 1 can be found on library disk number 434. This is version 1.84, binary only. Author: Ditek International
Labeler	A label generation program for Epson compatible printers. Has both English and German versions. This is version 3.0, binary only, shareware, source available from author. Author: Siegfried Rings

Fred Fish Disk 436

AztecArp	An Arp interface package fixed to work with Aztec 'C' version 5.0. This is version 1.9, an update to the version on disk 376, and includes a number of bug fixes and a couple of new features (such as vsprintf/vfprintf/ vprintf-like Arp routines and fixes for Kickstart 2.0). Includes source in 'C' and assembly language. Author: Olaf 'Olsen' Barthel
BatchRequester	A simple program which opens an Arp filerequester and writes the result to an environment variable. Very useful if used in batchfiles. Version 1.1, source code in Oberon. Author: Christoph Teuber
Berserker	Detects and eliminates viruses. Knows all 'popular' viruses and their kin, including the new 'Centurion' and 'Traveling Jack' link viruses. Comes with a resident handler which continually checks memory to prevent virus infection and a utility to fix programs corrupted by the 'Centurion' and 'Traveling Jack' viruses. Version 5.02, an update to the version on disk 355. Contains partial source in assembly. Author: Ralf Thanner
Input	How to read keyboard input simply and quickly. Includes C source, a sample program, technical discussion, and programming modules that you can "plug in" to your own C programs. Includes source. Author: Timm Martin.
KeyMacro	A keyboard macro program, configurable via a text file, that also supports hotkey program execution. You can map up to eight functions to each key, including keys such as cursor keys, the return key, etc. Version 1.8, an update to version 1.6 on disk 398. Includes source. Author: Olaf 'Olsen' Barthel
LhLib	A shared reentrant Amiga runtime library featuring highly optimized assembly language versions of the LhArc data compression / decompression routines. Compresses faster and more efficiently than any other currently available implementation of the Lzhuf algorithm. Two example appli- cations for data compression/decompression, an interface to the Amiga Oberon Compiler, and documentation how to use the library in your own programs are included. This is version 1.8, binary only. Authors: Holger P. Krekel and Olaf 'Olsen' Barthel
MemGuard	A program similar to MemWatch, which continually checks the low memory vector table for random trashing. Has been optimized and greatly enhanced to support the 68010, 68020, 68030, etc. microprocessors. Unlike MemWatch, MemGuard does not run as task in a dummy loop but rather as a low level interrupt routine which is capable of trapping memory trashing even before exec might know of it, and even while task switching is forbidden. Version IV, an update to version IIIa on disk 354, binary only. Author: Ralf Thanner
MMB	With MMB, users of 3 button mice under WB 2.0 can use the middle mouse button as a shift key to do multiple selects. Binary only. Author: Garry Glendown
MT420d	Printer driver for the Mannesmann Tally MT420d. Update to the old version on disk 164. Includes a few bug-fixes. Author: Sascha Wildner
Zoom	A fast and efficient floppy disk archiving utility based on the data compression / decompression algorithms used by lh.library. Has an Intuition and a Shell interface, fully supports Kickstart 2.0, is able to add texts and notes to archived output files, knows 66 different bootblock viruses, includes a number of compression parameters (such as encryption of the output file) and a lot more. Version 3.10, binary only. Author: Olaf 'Olsen' Barthel

Fred Fish Disk 437

CLIwindow	CLIwindow allows you to manipulate the dimensions of a CLI window. It can be moved, enlarged, or shrunk. This is version 1.00. Includes source in assembly. Author: Roger Fischlin
Flip	Very small program which replaces the left-Amiga-N and M commands with screen and window flipping commands. It's an excellent example of how to use PC-relative addressing within input handlers. Version 2.0, includes a technical discussion and source in C and assembly. Author: Mike Monaco and Timm Martin.
FMouse	A mouse pointer accelerator, similar to Matt Dillon's DMouse. Includes a screen blanker and "hot keys". This is version 1.01. Includes source in assembly. Author: Roger Fischlin
PatchCompiler	A program to generate patches using a Pascal like language to describe what needs to be patched. This is version 1.0. Includes source in assembly. Author: Roger Fischlin
WaitAnyKey	A CLI command which will wait until the user presses any key. Useful for batch files, to pause until any key is struck. Version 1.00, includes source in assembly. Author: Roger Fischlin

Fred Fish Disk 438

GadgetED	A program for creating and editing intuition gadgets. Includes a palette editor, generation of either C or assembly source, and binary saving for later loading and editing. Version 2.0, includes source. Author: Jan van den Baard
MenuC	A menu and gadget compiler. Takes a simple ascii file describing menues and gadgets and creates the appropriate IntuiText structures needed to actually create working menues and gadgets, in either C or assembly source. This is version 0.8, binary only. Author: Bruce Mackey
ToolLib	A shared library containing 45 useful functions for all kinds of programs. There are functions for ports, sorting, gadgets, memory, string, directory and file handling, etc. Version 7.6, includes source. Author: Jan van den Baard

Fred Fish Disk 439

AIBB	Amiga Intuition Based Benchmarks is a program designed to test various aspects of CPU performance using a full intuition interface. Tests include "WritePixel", Sieve, Sort, Savage, Dhrystone, and Matrix. V2.0, binary only. ByLaMonte Koop
Curses	A link library containing many of the terminal independant standard "curses" functions. Designed primarily for those interested in porting UNIX screen based programs to the Amiga. V1.22, an update to FF391. Includes source and examples. By Simon John Raybould
DeluxeChanger	Converts binary files to assembler, basic, or C source code data initialization statements. It is useful to add graphics or sound samples to programs as initialized data. Version 1.0, includes source in assembler. Author: Andreas Ropke
HDClick	A program selector, typically installed in the startup sequence as the first command. Has user defined gadgets, a configuration file, an iconify function, and works with both NTSC and PAL systems. V1.21, binary only. Author: Claude Mueller
M2Utils	Various source modules for Benchmark Modula-2. Includes ColorReq, an interface to the Dissidents color.library; IFFLib, an interface to Christian Webers iff.library; and ARP, an interface to ARP V1.3. Author: Sascha Wildner

Fred Fish Disk 440

3DPlot	A 3D function plotting program that does hidden line, solid, or contour plots of equations of the form Z=F(X,Y). You can scale the plot, set plot limits, change rotation, etc. Can save and load the plots themselves, as well as the data. Version 2.0, includes source. Author: Randy Finch
DMake	Matt's version of the UNIX make utility. Features multiple dependancies, wildcard support, and more. V1.0, an update to FF246, but now includes source. Author: Matt Dillion
MegaD	Yet another disk utility program for the Amiga. This one allows an unlimited number of directories to be accessed simultaneously. V1.01, shareware, binary only. By John L. Jones

Fred Fish Disk 441

Deksid	A disk and file hexadecimal editor. Useful for editing binary files. Version 1.10, shareware, binary only. Author: Christian Warren, Marc Dionne
DiskPrint	Prints labels for 3.5" disks, primarily for PD library disks. Label data files can be loaded into memory so labels for special disks are available without having to type anything in or without having to wait for AmigaDOS to read in the full directory. This is version 2.3.5b, an update to version 2.3.5 on disk 433, and fixes a minor problem with some printers. Shareware, binary only. Author: Jan Geissler
Dme	Version 1.42 of Matt's text editor. Dme is a simple WYSIWYG editor designed for programmers. It is not a WYSIWYG word processor in the traditional sense. Features include arbitrary key mapping, fast scrolling, title-line statistics multiple windows, and ability to iconify windows. Update to FF284, includes source. Author: Matt Dillon

Fred Fish Disk 442

ToolManager	With ToolManager you can add your own programs to the tools menu of the 2.0 Workbench. Requires Workbench 2.0. Version 1.2, includes source. Author: Stefan B.
UUCP	An implementation of uucp for the Amiga, including mail and news. This is Matt's version for the Amiga, based on William Loftus's Amiga UUCP 0.40 release with news code from his 0.60 release, and months of work by Matt to make fixes and add enhancements. V1.08D, an update to FFdisk 360, and consists of three parts. Parts 1 and 2 are on this disk, and part 3 is onFF443. Includes source. Author: Various, major enhancements by Matt Dillon

Fred Fish Disk 443

DICE	Dillon's Integrated C Enviroment. A C frontend, pre- processor, C compiler, assembler, linker, and support libraries. Features include ANSI compatibility, many code optimizations, and autoinit routines (user routines called during startup before main is called). V2.06.14, an update to FF359. Shareware, binary only. Author: Matthew Dillon
UUCP	An implementation of uucp for the Amiga, including mail and news. This is Matt's version for the Amiga, based on William Loftus's Amiga UUCP 0.40 release with news code from his 0.60 release, and months of work by Matt to make fixes and add enhancements. This is version 1.08D, an update to version 1.06D on disk 360, and consists of three parts. Parts 1 and 2 are on disk 442, and part 3 is on this disk. Includes source. Author: Various, major enhancements by Matt Dillon

Fred Fish Disk 444

ChinaChallenge	A game similar to Shanghai or Mahjong. The goal is to remove all parts of the pile, the so called Dragon, step by step. This dragon is composed of 120 different game pieces. You can always find four pieces displaying the same picture or chinese symbols. This is version II, an update to the version on disk 312. Changes include some bug fixes, unlimited undo, saving and loading of games, background music, title screen, etc. Binary only. Author: Dirk Hoffmann
EliteBBS	An online message and file handling system. Features include a message base, private mail, file library, support for xmodem, ymodem, and zmodem, fully buffered serial I/O routines for top speed, time limits, and more. V.31, binary only. By Nick Smith
MissileCmd	A fast Missile Command game written in assembly. Features include using a hires interlaced screen, time based events for correct operation on any speed Amiga, multitasking friendly, and sound effects. Binary only. Author: Max Bithead
RegExpLib	Shared library that implements regular expression pattern matching. Version 1.0, binary only. Author: Stephen Moehle
UltraF-4	Demo version of a super graphic based floppy format program that can format four floppy disks at the same time and even format disks that other programs give up on. Binary only. Author: Terry Bullard and Signa Bullard

Fred Fish Disk 445

MWTape	A tape handler which uses scsi.device to implement serial access to typical streaming tape devices. Includes source. Author: Markus Wandel
OptMouse	A program which allows you to use a Mouse Systems M3 serial mouse on the Amiga and instructions which allow a serial mouse to be modified to plug directly into the Amiga mouse port. Useful as an example of how to "fake" mouse movements and may be of use in writing drivers for digitizers, light pens, and the like. Includes source. Author: Ed Hanway
Tar	A port of a UNIX tar clone that can work with the TAPE: handler (also on this disk) to read and write UNIX tar compatible tapes. Includes source. By John Gilmore, FSF, Jonathan Hue, et. al.
TurboText	An almost fully operational demonstration copy of a new sophisticated text editor for the Amiga. Features many unique capabilities including an impressive ARexx interface with over 140 commands available, full outlining abilities, clipboard support, complete reconfigurability, recorded macros, programmer's calculator, emulations of many popular text editors, and much more. This demo version does not allow saving or printing of documents and limits the size of cut and paste operations. Version 1.0, binary only. Author: Martin Taillefer
UUCP	A bug fix for UUCP 1.08 released on disks 442 and 443, which had already been finalized at the time this fix reached me so could not be included there. Fixes a serious bug in uucico. Author: Matt Dillon

Fred Fish Disk 446

CanonBJ	A printer driver for the Canon BJ series of printers. Faster and supports more graphic and text modes than the standard Commodore driver. Shareware, binary only. Author: Wolf Faust
GamePort	A toolkit with link time and shared libraries that allow easy access to the GamePort device. Includes examples and test programs. Version 1.1, binary only. Author: Paris Bingham

Input	A toolkit with link time and shared libraries that allow easy access to the Input device. Includes examples and test programs. Version 1.1, binary only. Author: Paris Bingham
PointerLib	A disk based shared library which provides programmers with easy access to custom pointers and a consistent user selected busy pointer. Includes source. Author: Luke Wood
Post	An excellent PostScript interpreter for the Amiga which implements the full Adobe language. Supports type 1 and type 3 fonts, screen output, file output, and printer output. Requires Arp library V39+ and ConMan V1.3+. This is version 1.4, an update to version 1.3 on disk 408. Includes source in C. Author: Adrian Aylward

Fred Fish Disk 447

AmiBack	Demo version of a new backup utility. Features include backup to any AmigaDOS compatible device (such as floppies, removable hard disks, fixed media hard disk, and tape drives), no copy protection, configuration files, complete backups, incremental backups, selective backups, file exclusion filter, setting of archive bit, etc. Demo version does not have restore, compare, or scheduler. Version 1.0, binary only, requires AmigaDOS 2.0. Author: MoonLighter Software
BackPac	Demo version of a new backup program. Features include intuition interface, data compression, 907K written per floppy, full and incremental backups, full or selected restores, inclusion/exclusion patterns, user defined config files, multitasking friendly. Version 1.3, binary only. Author: Canadian Prototype Replicas
DFC	Disk Format and Copy program. A nice, general purpose, disk formatter and copier. This is version 5, an update to the version on disk 131. Includes source. Author: Tom Rokicki and Sebastiano Vigna
FlashBack	Demo version of a new backup utility. Fully functional version except for the restore operation. Features include backup of multiple partitions in one pass, backup of non- AmigaDOS partitions, backup to a file, automated unattended backups, pattern matching, and streaming tape support. Version 2.05, binary only. Author: Leon Frenkel, Advanced Storage Systems
SMan	A Mandelbrot generation program. Uses the mouse to select regions within borders of the Mandelbrot set to zoom up to magnifications of 10**19. Includes math coprocessor support and options to save images as an IFF file. Shows example of assembly programming of extended precision for the 68881. Includes source. Author: David McKinstry
TCL	Port of Tool Command Language, a simple textual language intended primarily for issuing commands to interactive programs such as text editors, debuggers, illustrators, shells, etc. It has a simple syntax and is programmable so TCL users can write command procedures to provide more powerful commands than those in the built in set. Alpha 2 version, binary only. Author: Dr. John Ousterhout, Amiga port by Hackercorp

Fred Fish Disk 448

AmigaPet	Another cute screen hack. Version 2.52b, binary only, source available from author. Author: Patrick Evans
FifoDev	FIFO: is like PIPE: but is based on fifo.library rather than its own implementation. Fifo.library is a general fifo library implementation that supports named fifos, writing to a fifo from a hardware exception, multiple readers on a fifo with each getting the same data stream, efficient reading, and automatic or manual flow control. Programs that require non-blocking IO can access one side of a FIFO: connection via the fifo.library instead of the FIFO: device. Version 2, an update to version on disk 432. Includes some source. Author: Matt Dillon
Mkid	A program identifier database package that provides a logical extension to "ctags". The ID facility stores the locations for all uses of identifers, preprocessor names, and numbers (in decimal, octal, or hex). Includes source. Author: Greg McGary, Amiga port by Randell Jesup
NightMare	A handy little program that uses "shock" techniques to scare people. Fun to watch while someone else is using your computer. Version 1.0, binary only, source available from author. Author: Patrick Evans
OnTime	Holds up a task until a given time and then releases it to run. Version 1.0a, binary only, source available from author. Author: Patrick Evans
PicToANSI	Converts a one bit plane 320x200 IFF picture to a file that displays the picture on any ANSI compatible terminal. Binary only, source available from author. Author: Patrick Evans
SolitaireX	A solitaire game. Features include all possible moves shown with a pulsing green box around the card, reshuffle, unlimited undo, and tournament mode. Binary only. Author: Stephen Orr, Gregory M. Stelmack
ST2Amiga	A program to convert Atari ST format relocatable executables to Amiga format relocatable executables, for subsequent loading into the ReSource disassembler and conversion to Amiga. ST2Amiga should also compile and run on an ST. Version 1.1, includes C source. Author: David Campbell
Swish	A small simple screen hack that pushes the screen around using the view port, and simulates a floating motion. Binary only, source available from author. Author: Patrick Evans

Fred Fish Disk 449

Globulus	Demo version of a new arcade game that is reminiscent of the old Q-bert game. You control a cute little character and hop him around pathways in a diagonal kind of world, while trying to avoid bad things and catch good things. Binary only. Author: Innerprise
Handshake	A full featured VT52/VT100/VT102/VT220 terminal emulator. The author has taken great pains to support the full VT102 spec. Supports ANSI colors, screen capture, XPR external protocols, user selectable fonts, ARexx, and more. This is version 2.20c, an update to version 2.12a on disk number 172. Binary only, shareware. Author: Eric Haberfellner
Iff2Ansi	Turns any two-color low-res IFF picture into ANSI text that can be displayed on any ANSI compatible terminal. This is version 0.1, includes source in assembly. Author: Carnivore/ BeerMacht
Shazam	A picture viewer for Dynamic HiRes images created with Macro Paint, the 4096 color high resolution paint program from Lake Forest Logic. Version 1.1, includes two sample Dynamic HiRes images and source for display program. Author: Lake Forest Logic
WonderSound	Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls. Version 1.7, an update to version 1.6 on disk 428. Binary only. Author: Jeffrey Harrington

Fred Fish Disk 450

AmyVsWalker	Another cute animation from Eric Schwartz. This one has Amy the Squirrel attempting to take a wrench to the a "Walker" from "The Empire Strikes Back". Author: Eric Schwartz
MinRexx	A simple ARexx interface which can be easily patched into almost any program. Includes as an example the freedraw program from disk number 1. This is version 0.4, an update to the version on disk 188. Includes source. Author: Tomas Rokicki
Tabu	Quarter inch cartridge (QIC) tape backup utility. Works with Microbotics HardFrame. May work with other controllers as well (untested). Includes source. Author: Roy C. Sigsbey
UUCP	A bug fix for UUCP 1.08 released on disks 442 and 443, which had already been finalized at the time this fix reached me so could not be included there. Includes a new getty and some bug fixes. Author: Matt Dillon

Fred Fish Disk 451

'Liner	A shareware outliner whose function is to create outlines for notes or export to other programs. 'Liner can save an outline as ASCII text and is clipboard compatible. This version utilizes a number of AmigaOS 2.0 features and thus requires 2.0. Support for the new ECS Denise display modes is also included. V2.11, an upgrade to FF394. Includes source in C. By Dave Schreiber
Convert	Converts 39 different image formats into CBM standard 24 bit IFF files for display on devices such as Black Belt Systems HAM-E product. Version 1.6, binary only. Author: Pete Patterson and Ben Williams
ProDrivers	AmigaDOS 1.3 printer drivers for the IBM 4201 and 4202 series of printers. Version 1.0, binary only. By David White
RCS	The Revision Control System (RCS) manages multiple revisions of text files. RCS automates the storing, retrieval, logging, identification, and merging of revisions. RCS is useful for text that is revised frequently, for example programs, documentation, graphics, papers, form letters, etc. This is an update to RCS version 1.2 on disks 281 and 282, and includes only the files that have changed. Author: Walter Tichy. Amiga port by Raymond Brand and Rick Schaeffer.
RRamDisk	Another recoverable ram disk. This one supports up to 32 units and can be autobooted. Unused sectors are deleted from memory. The ram disk can be formatted, copied to, or used just like a normal disk drive. Binary only. By Bob Dayley
SnoopDos	A utility for monitoring AmigaDOS calls. In particular, it allows you to see what libraries, devices, fonts, environment variables or startup files a program is looking for. Very useful when you're trying to install a new application. V1.2, an update to FF388. Includes source in C. By Eddy Carroll

Fred Fish Disk 452

Budget	A program to help with managing personal finances. V1.302, an update to FF416. Binary only. By Le Lay Serge Camille
FLODemo	Floorplan Construction Set demo. Fully functional except the Save IFF function is disabled and 15 pages of clip rooms have been replaced by a single sample page. This is version 1.48, binary only. ByJim Hennessey, Gramma Software
ImageLab	A program which performs image processing on IFF pictures. Includes standard image processing functions such as convolution, averaging, smoothing, enhancement, histograms, FFT's, etc. Also includes file conversion functions, a clipboard, and other useful functions. Version 2.4, an update to version 2.2 on disk 243, includes bug fixes, PAL support, overscanned and super-bitmap image support, improved paint operation, better area selection, HAM histograms, and FFTs. Binary only. Author: Gary Milliorn
MandelPAUG	A version of MandFXP with complete online help, a fully implemented Mandelbrot and Julia set "movie mode", and many improvements in the user interface. Version 2.1, binary only, source available. Author: Bruce Dawson, Steve Larocque, Jerry Hedden

Fred Fish Disk 453

AmigaTration	A "Concentration" like game for the Amiga, where you must locate matching tiles on a grid that can range from 4x4 (easy) to 12x12 (difficult). Version 1.0, binary only. By Gabe Dalbec
Lemmings	Demo version of an enchanting new game from Psygnosis. The lemmings are cute little guys you have to guide across the screen from one level to the next, over and under and around various obstacles, by using your mouse and changing each lemming's characteristics to get them to perform various useful tasks such as building bridges or digging through obstacles. Binary only. Author: Dave Jones, Gary Timmons, Scott Johnston, and Brian Johnston
ProjMot	A Projectile Motion plotter. Plots the path of a projectile fired with a variable initial velocity and angle. Display can be scaled, and time can be accelerated. The program returns the distance traveled and the time it took. This is version 1.01, includes source. Author: Chris Hopps
Quick	A utility program specifically targeted at hard drive users to eliminate the frustration of launching programs on the Amiga. It eliminates the need to open Workbench windows and/or remember and type in long pathnames to executables. Version 1.0, binary only. Author: Greg Gorby

Fred Fish Disk 454

Decigel	A software fix for programs that use instructions which are priviledged on the 68010/020/030. Update to the version on disk 18. Includes source in assembly. Author: Byrce Nesbitt
Enforcer	Enforcer uses the MMU to build a shroud of protection over anything that is not legal memory. Any empty holes in the address space are marked as illegal. Reads of the system ROMs are allowed, but not writes. With the exception of longword reads of location 4, the lowest 1K of memory is completely protected. When an illegal access is detected, the power LED will flash and a detailed message will be sent out the serial port. Binary only. Author: Bryce Nesbitt
Redaktu	A PostScript program which runs on PixelScript to edit other PostScript programs. Several examples and a detailed explanation are included. Author: John Starling
StillStore	A program designed for freelance, corporate, and broadcast television. It loads and displays IFF images of any resolution interchangeably from a list file or as inputted directly (I.E. random access). The user may easily skip forward or backward one or more pictures in the list. A "generic" display is always just a few seconds away. The program can be used "on air" with no concern that a pull down menu will suddenly appear in the viewable area. It also provides for a precise cue for changing windows or screens. While the main purpose is to load "news windows" of 1/4 screen size, StillStore can also handle full-sized and overscanned images. Also includes slide show modes and a screen positioning feature. Stillstore is written in the Director language from the Right Answers Group. This is version 1.2.1, an update to version 1.2 on disk 317. Binary only, source available from authors. Author: R. J. (Dick) Bourne and Richard Murray
Vortex	A universal accented character converter for Amiga, IBM-PC, Macintosh, and C64 files written in most west european languages (Danish, Finnish, French, German, Italian, Islandic, Norwegian, Spanish, Swedish, and more. Works with either ASCII or Word Perfect files. Version 1.5, includes source. Author: Michel Laliberte

Fred Fish Disk 455

AngusCopy	A disk copy program with intuition user interface. Version 2.0, shareware, includes source in Modula II. Author: Andreas Gunser
ConvMacF	Converts Macintosh type 1 Adobe fonts to a format usable on the Amiga. Reads a compressed Macintosh format Adobe font file and unpacks it to an ASCII text file, which permits sending the font to a printer as a PostScript program. Includes source. Author: Unknown, Amiga port by Joe Pearce
MemMon	A small memory monitor. Version II, shareware, includes source in Modula II. Author: Andreas Gunser
Vlt	VLT is both a VT100 emulator and a Tektronix (4014 plus subset of 4105) emulator, currently in use at SLAC (Stanford Linear Accelerator Center). Although the VT100 part was originally based on Dave Wecker et al.'s VT100, many enhancements were made. Features include use of ARP, an ARexx port, XMODEM 1K/CRC and Kermit protocols, support for additional serial ports, external file transfer protocols (XPR), a "chat" mode, and scrollback/review/ history buffer. It comes in two versions, one with Tektronix emulation, and one without. The Tektronix emulation allows saving IFF files, PostScript files, and printing bitmaps to the printer. This is version 5.034, an update to version 4.846 on disk 410. Binary only. Author: Willy Langeveld

Fred Fish Disk 456

CheatSheet	A compilation of cheats, hints, backdoors, helpful bugs, passwords, codes, solves, and walkthroughs for over 150 Amiga games. February 1st, 1991 edition, an update to January 1st edition on disk 431. Author: Mark Shnayer
CManual	Parts 1 and 2 of a complete C manual for the Amiga which describes how to open and work with Screens, Windows, Graphics, Gadgets, Requesters, Alerts, Menus, IDCMP, Sprites, VSprites, AmigaDOS, Low Level Graphics Routines, Hints and Tips, etc. The manual also explains how to use your C Compiler and gives you important information about how the Amiga works and how your programs should be designed. The manual consists of 15 chapters together with more than 100 fully executable examples with source code. When unpacked, the manual and examples nearly fill up four standard Amiga floppies. This is version 2.0, an update to version 1.0 on disk 337. Because of its size, it is distributed on two library disks, parts 1 and 2 on disk 456 and parts 3 and 4 on disk 457. Author: Anders Bjerin

Fred Fish Disk 457

CManual	Parts 3 and 4 of a complete C manual for the Amiga which describes how to open and work with Screens, Windows, Graphics, Gadgets, Requesters, Alerts, Menus, IDCMP, Sprites, VSprites, AmigaDOS, Low Level Graphics Routines, Hints and Tips, etc. The manual also explains how to use your C Compiler and gives you important information about how the Amiga works and how your programs should be designed. The manual consists of 15 chapters together with more than 100 fully executable examples with source code. When unpacked, the manual and examples nearly fill up four standard Amiga floppies. This is version 2.0, an update to version 1.0 on disk 337. Because of its size, it is distributed on two library disks, parts 1 and 2 on disk 456 and parts 3 and 4 on disk 457. Author: Anders Bjerin
Line	A shell written to enhance the bare-bones CLI with features that many people find useful in the UNIX csh, including history, aliases, a directory stack, etc. Version 1.15, includes source. Author: John D. Aycock
QuickReq	An "Ask utility" to replace the "ask" command from AmigaDOS. QuickReq can load arguments from files thus making it possible to handle long questions and texts. Also supports optional line breaks in BodyText, an option to center text to window, DisplayBeep when requester is activated, setting your own FrontPen number, specifying requesters width and height and all kinds of overscan displays. First public release. Version 2.0, includes source. Author: Markus Aalto

Fred Fish Disk 458

ATCopy	A program to copy files from the Amiga side of a system equipped with a PC/AT bridgeboard, to the PC side, using wildcards. Copies directly through the shared memory. Supports CLI and WorkBench usage. This is version 2.2, an update to version 2.1 on disk 429. New features include much faster copying and selection of all options using WorkBench. Shareware, binary only. Author: Peter Vorwerk
Csh	Version 4.02a of a csh like shell derived from Matt Dillon's shell, version 2.07. This is an update to version 4.01a on disk 331. Changes include bug fixes, preservation of file protection bits by cp, some new commands, and reformatted documentation. Includes source. Author: Matt Dillon, Steve Drew, Carlo Borreo, Cesare Dieni
GIFMachine	A program that will convert CompuServe GIF image files into IFF SHAM and 24bit ILBMs. It offers a number of extra options like dithering, horizontal and vertical flip, as well as automatic border removal. Requires KickStart version 2.0 or greater to run. This is version 2.116, an update to version 2.104 on disk 405. Includes source. Author: Christopher Wichura
TeXify	A package of ARexx scripts, for CygnusEd users, which allows total control of AmigaTex from within CED. This is version 1.10e, binary only. Author: Wolf Faust

Fred Fish Disk 459

AmiDock	An Amiga version of the NeXT's "dock", but more versatile and not as limited. Provides you with a number of buttons on the WorkBench screen that, when pressed, will launch other programs. These buttons are fully configurable to run any program you want. Version 1.2.4, binary only. Author: Gary Knight
Conquest	Lore of Conquest is a war game similar in concept to the board game Risk. You are the lord of an entire world, destined to rule the galaxy. Some worlds are virgin fruits, ready for you to colonize. Some worlds have natives who do not wish to accept your rule, these you must conquer for they will yield more valuable resources. As you claim the galaxy you will find, you are not the only one extending your dominion. This is a two-player game, so be prepared to defend yourself and take what is yours! Version 1.3, an update to version 1.2 on disk 432. Binary only, shareware. Author: Michael Bryant
Rxgen	An ARexx library that allows you to call any function of almost any Amiga library from an ARexx program. This is version 1.0, binary only. Author: Francois Rouaix
XprZmodem	An Amiga shared library which provides ZModem file transfer capability to any XPR-compatible communications program. This is version 2.10, an update to version 2.0 on disk 261. Includes source. Author: Rick Huebner
Zoom	A fast and efficient floppy disk archiving utility based on the data compression / decompression algorithms used by lh.library. Has an Intuition and a Shell interface, fully supports Kickstart 2.0, is able to add texts and notes to archived output files, knows 66 different bootblock viruses, includes a number of compression parameters (such as encryption of the output file) and a lot more. Version 4.1, an update to version 3.10 on disk 436. Binary only. Author: Olaf 'Olsen' Barthel

Fred Fish Disk 460

JMenu	This program allows an AmigaDOS script to display a menu, wait for the user to make a selection either with the mouse or the keyboard, and return the selection back to the script through an environment variable. It can also immediately execute any valid AmigaDOS command based upon the menu selection. The maximum size of the menu is based on the screen resolution and font size, up to a maximum of 26 selections of a maximum of 80 characters each and an optional title area of up to 4 lines. Version 1.1, binary only. Author: James Collins
NetHack	A screen oriented fantasy game where your goal is to grab as much treasure as you can, retrieve the Amulet of Yendor, and escape the Mazes of Menace alive. On the screen is a map of where you have been and what you have seen on the current dungeon level. As you explore more of the level, it appears on the screen in front of you. Nethack generates a new dungeon every time it is played, thus even veteran players will continue to find it entertaining and exciting. This is version 3.0, patch level 10, an update to version 2.3 on disks 189 and 190. Binary only, source available. Author: Various, see documentation.
ShadowMaker	Demo version of an Intuiton based Font shadow generator. In seconds you can convert your favorite fonts into color fonts with professional video shadows built right in. The only restriction for this demo is that the final font height at SAVE times must be less than 40 pixels in height. Version 1.5, an update to version on disk 428. Binary only. Author: Stephen Lebans

Fred Fish Disk 461

DFrags	Disk Fragmentation reporting utility. Displays disk fragmentation for both floppy and hard disk devices. Does not attempt to change any data, just gives a report. Version 2.02, shareware, binary only. Author: Custom Services
DiskPrint	Prints labels for 3.5" disks, primarily for PD library disks. Label data files can be loaded into memory so labels for most PD disks are available after a few mouse- clicks. Features include three different label sizes, default file, different label library functions, Amiga- LibDisk contents read-in and easy handling. This is version 2.7.2, an update to version 2.3.5b on disk 441. Shareware, binary only. Author: Jan Geissler
Logic	A small game that is somewhat reminiscent of "life". Version 2.0, includes source in assembly. Author: Thomas Jansen
MandAnim	A Mandelbrot Animation program that allows you to easily generate series of lo-res/16-color pictures. Features full mouse and/or keyboard operation, zooms, auto-save, high (+cheat) speed, iconization, preview, ease, etc. The generated pictures all remember their positions and settings so they can be reloaded. This is version 1.2, an update to version 1.1 on disk 387. Binary only. Author: Ekke Verheul.
NewList	A powerful LIST replacement. Supports many features including sorts, character filters, case sensativity, most options offered by LIST, date construction, UNIX wildcards, and much more. Sort routines are VERY fast and memory usage is minimal. Version 4.5, binary only. Author: Phil Dietz
SBall	A game using the joystick to control a "bouncing ball". Binary only. Author: Hertzig Wolfgang and Meisner Christian
TDraw	An easy to use Window Title Bar Pattern Editor for use with TBar. Load, save, test, and edit patterns. Saves script files that can be executed later to change window patterns at anytime (like on boot-up). Includes TRand, a utility to pick a random TBar file so your WorkBench will look different each time you reboot. Version 1.0, binary only. Author: Phil Dietz
Tron	Another game based on the lightcycle race sequence in the science fiction computer film "Tron". This is version 1.0, unrelated to other Tron releases in the library. Includes source in assembly. Author: Thomas Jansen

Fred Fish Disk 462

CacheDisk	Improves floppy disk throughput by caching entire tracks of data. Buffers disk reads and writes for maximum speed gain and has a user setable number of buffers for each drive. Version 1.0, binary only. Author: Terry Fisher
DisTerm	The dissidents telecommunication program. Has built in phone directory requester, autodial, various file transfer protocols, ascii send and capture, full/half duplex, split window, color requester, macro keys, selectable baud, CR/LF expansion, automatically configured per phone entry. Binary only. Author: Jeff Glatt
Humartia	An arcade game where each player controls a jet and must destroy the opponents jet, which is accomplished when a jet has been hit 75 by either missiles or air mines. Binary only. Author: Jason Bauer

SeaLance	Game based on a Trident submarine simulator. You must use the weapons at your disposal to liberate the earth's cities from alien occupation. Binary only. Author: Jason Bauer
Up&Down	The object of this game is to get four of your chips in a row (across, down, or diagonally) without letting your opponent get his chips in a row first. Binary only. Author: Jason Bauer

Fred Fish Disk 463

ExecRexx	A program that turns an ARexx script into an executable which can be run from WorkBench or the CLI. Binary only. Author: Jeff Glatt
FileIO	A file requester library based upon an example by R.J. Mical. Has numerous features, including uses other than disk I/O. Version 1.C, update to version 1.9 on disk 393. Binary only. Author: Jeff Glatt, Jim Fiore, R.J. Mical
ILBM	The ilbm reader/writer library 0.5 and examples. Also can be used for non-ILBM files. 100% compatible with original Electronic Arts code. Binary only. Author: Jeff Glatt
LibTool	A utility that can quickly convert C or assembly code into an Amiga shared library. Also makes all support files including C and assembly include files, bmap files, Manx and Lattice pragmas, C glue stubs. Can also make a device. Binary only. Author: Jeff Glatt
PrintSpool	A shared library to easily add text or graphics print spooling to any C or assembly program. Binary only. Author: Jeff Glatt
RexxIntuition	An ARexx function library which allows ARexx scripts to open windows/screens, add menus, add proportional, boolean, and string gadgets, use requesters, load/save ILBM pictures, use a color requester, print text in various colors, sizes, and styles, draw colored lines and boxes, print text or graphics, etc. Binary only. Author: Jeff Glatt
RexxLib	A shared library that can be used to easily add an ARexx implementation to any program in a memory efficient manner. Binary only. Author: Jeff Glatt

Fred Fish Disk 464

Cross	A program that creates crossword puzzles. Has a message data file to allow easy translation into almost any human language, with English and German currently supported. This is version 3.3, includes source in M2Amiga Modula-2. Author: Jurgen Weinelt
FileWindow	A completely public domain file requester which may be used in any program, even commercial ones. It uses dynamically allocated memory to hold the file names so the only limitation is the amount of memory available. Includes a filter option to limit display of filenames to only ones with a specific extension. Names are automatically sorted while they are being read and displayed. This version has been enhanced by Bernd Schied for more device gadgets, renaming of files and directories, ANSI-C source, and more. Update to version 1.10 on disk 336. Includes source. Author: Anders Bjerin, Bernd Schied
PictureEditor	An "object-oriented" paint program that allows you to create, modify, load, and save hierarchical structured picture objects. Version 1.12, shareware, binary only. Author: Hans W. Stremlau
Scan	CLI utility to display the individual character contents of any file. Displays the ASCII and Hex values, count and percentage of total along with actual character (if displayable). Listing is displayed on a console window or optionally written to an output file. Possible uses would be to scan files for binary characters, relative character counts, matching numbers of special characters, determining LF/CR configurations, etc. Version 1.0, includes source. Author: Dan Fish, console routine by Jim Cooper

Fred Fish Disk 465

FCS	Prerelease version of an iterated Fractal Construction Set program, used to generate iterated fractal images such as Sierpinski's triangle, ferns, etc. This is version 0.99, binary only. Author: Garth Thornton
Lz	An lharc compatible archiver that is reported to be much faster than other available archivers and produce smaller archives. Version 1.01, shareware, binary only. Author: Jonathan Forbes
MRBackUp	A hard disk backup utility that does a file by file copy to standard AmigaDOS floppy disks. Includes an intuition interface and file compression. Version 5.02a, an update to version 3.4 on disk 327. Shareware, binary only. Author: Mark Rinfret
TextPlus	A word processor for the Amiga, with both German and English versions. TextPlus enables you to write letters, books, programs etc. in a very easy and comfortable way. This is version 2.2E, the same as on disk 375. However, this release includes the source (the description on disk 375 claims the source is included but it was not). Author: Martin Steppler

Fred Fish Disk 466

DICE	Dillon's Integrated C Enviroment. A C frontend, preprocessor, C compiler, assembler, linker, and support libraries. Features include ANSI compatibility, many code optimizations, and autoinit routines (user routines called during startup before main is called). This is version 2.06.15 (2.06B), an update to version 2.06.14 on disk 443. Shareware, binary only. Author: Matthew Dillon
HamLabDemo	Demo version of an expandable image format conversion utility. Converts GIF, TIFF, PBMPLUS, Spectrum 512, MTV, QRT, and Sun images into HAM and SHAM. Images can be scaled, dithered, color corrected, and cropped. This demo version is limited to processing images of 512 by 512 pixels or less. Version 1.1, shareware, binary only. Author: J. Edward Hanway
Mosaic	Mosaic is a game played with a set of 81 two-by-two tiles on a 24-by-24 playing area. The objective of the game is to place your tiles such that squares of the same pattern are connected as much as possible. Version 1.0, includes source. Author: Kirk Johnson and Loren J. Rittle
StopWatch	A stop watch application with the precision of one millisecond (variable), which scans the joystick button. Full multitasking capability and intuition interfacing, ARexx port for parameter and result handling, and supports all non-proportional WorkBench fonts. Written in Modula 2 and assembly language. Version 2.0, binary only. Author: Christian Danner

Fred Fish Disk 467

Multiplot	An intuitive data plotting program featuring flexible input options, arbitrary text addition, automatic scaling, zoom and slide with clipping at boundaries, a range of output file formats and publication quality printed output. Workbench printers are supported via transparent use of the PLT: device. This is version XLNd, an update to version XLNc on disk 373. Includes bug fixes, many new features, postscript and HP LaserJet III support, logarithmic axes. Author: Alan Baxter, Tim Mooney, Rich Champeaux, Jim Miller
PowerSnap	A utility that allows you to use the mouse to mark characters anywhere on the screen, and then paste them somewhere else, such as in another CLI or in a string gadget. Checks what font is used in the window you snap from and will look for the position of the characters automatically. Recognizes all non proportional fonts of up to 24 pixels wide and of any height. Works with AmigaDOS 2.0 in both shell and WorkBench environments. Version 1.0, binary only. Author: Nico Francois

Fred Fish Disk 468

Post	An excellent PostScript interpreter for the Amiga which implements the full Adobe language. Supports type 1 and type 3 fonts, screen output, file output, and printer output. Requires Arp library V39+ and ConMan V1.3+. This is version 1.5, an update to version 1.4 on disk 446. Changes include better type 1 font rendering and some bug fixes. Includes source in C. Author: Adrian Aylward
Vlt	Vlt version 5.045, a partial update to version 5.034 on disk 455. Includes new executables with and without Tektronix emulation, and a new xprascii library. You still need the files from disk 455 to make a complete distribution. Binary only. Author: Willy Langeveld

Fred Fish Disk 469

AirAce	A fast paced WWI biplane shoot'em up game built using Accolade's Shoot'Em Up Construction Kit. Binary only. Author: Robert Grace
FastLife	A fast life program featuring an intuition interface, four screen sizes, 19 generations/second, and 153 patterns in text file format. Version 1.0, binary only. Author: Ron Charlton
Triangle	A game like chinese checkers, consisting of fourteen pegs and one empty hole in a triangular formation. The object of the game is to leave one peg in the original empty hole or have eight pegs on the board and no possible moves. Version 1.1, includes source in BASIC. Author: Russell Mason
WordPuzzle	The object of this game is to find a word in a puzzle arrangement. There are three different variations of the game. Version 1.1, includes source in BASIC. Author: Russell Mason

Fred Fish Disk 470

BCF	FORTRAN-77 compiler, linker, and runtime support library. No Amiga specific hooks, just vanilla FORTRAN. ANSI compatible with extensions. Version 1.3c, binary only. Author: Andre Kostli
KeyMenu	An alternative to Intuition's method of menu selection via the keyboard. Uses one key to activate the menu for the currently active window, the cursor keys to move through the menu as you choose, and the return key to select the desired menu item or escape key to abort selection. Works with AmigaDOS 2.0 mouse accelerator and has option to blank Intuition's pointer. Version 1.03, includes assembly source. Author: Ken Lowther
TripleYachtZ	An implementation and variation of the game "Yacht". Plays both Single (the standard game) and Triple, which differs from normal Yacht-Z in that all scores in the 3rd column of your scorecard are worth three times as much as the normal value and those in the 2nd are worth double. Version 1.2, binary only, source available from author. Author: Stephan Iannce

Fred Fish Disk 471

BTNTape	A "Better Than Nothing" SCSI tape device handler. It provides flat file access to a SCSI tape drive from application programs using simple DOS calls to Read() and Write(). It can also be used with the Amiga TAR utility for disk backups. It requires a "SCSI-direct" compatible SCSI bus adapter but will also work with the A2090(A). It now supports many more tape drives, and has some new features. This is version 2.0, an update to version 1.0 on disk 392. Includes source. Author: Robert Rethemeyer
MachIII	A "mouse accelerator" program that also includes hotkeys, features of sun mouse, clicktofront, popcli, title bar clock with a bbs online charge accumulator, Arexx support and much more. Updates for Workbench 2.0 have been added along with many fixes and new features. This is version 3.1, an update to version 3.0 on disk 378. Binary only. Author: Brian Moats and Polyglot software
MoleWt	MoleWt is a molecular weight calculator. The program accepts a chemical formula and returns the molecular weight. This is version 1.01, binary only. Author: John Kennan
Uedit	A nice shareware editor with learn mode, a command language, menu customization, hypertext, online help, a teach mode, split windows, copy and paste, undo, features. This is version 2.6e, an update to version 2.6c on disk 415. Binary only. Author: Rick Stiles

Fred Fish Disk 472

CNewsBin	This is part 1 of a C News distribution for the Amiga. This part includes all the binary and text files necessary to set up and run C News. Part 2 is available on disk 473 and contains the source. C News uses UUCP, such as Matt Dillons implementation (see disks 479 and 480) or that included with this software's previous version (disk 319). This package has been reworked and now includes a newsreader, AmigaRN (Sharware). All major (and a few minor) features of Unix C News are implemented. The Author refers to this as release 15-Dec-90, an update to the orginal version on disks 318 and 319. Author: Various, Amiga port by Frank Edwards
ICalc	An expression calculator that works with real and complex numbers, has arbitrarily-named variables and user-defined functions, startup files and more. Version 1.0, includes source. Author: Martin Scott
IFFBeep	A small utility that lets you replace the screen flash of DisplayBeep() with any IFF 8SVX sound file. Also plays sounds on disk insertion/removal. It can be run from the CLI or Workbench and includes an interactive "control panel". Version 2.0, binary only. Author: Paul Wilkinson

Fred Fish Disk 473

BigBrother	A virus infection detection program with some optional utilities. It runs as a normal task and checks every 1 second the important memory locations in the Amiga. As a bonus, BigBrother is capable of starting a new shell, starting script files, viewing and installing bootblocks. All this in a program less than 10K. Includes assembly source. Author: Erwin van Breemen
CNewsSrc	This is part 2 of a C News distribution for the Amiga. This part includes all the source for C News. Part 1 is available on disk 472 and includes all the binary and text files necessary to set up and run C News on the Amiga. CNews uses UUCP, such as Matt Dillons implementation (see disks 479 and 480) or that included with this sofware's previous version (disk 319). This package has been reworked and now includes a newsreader, AmigaRN (Sharware). All major (and a few minor) features of Unix C News are implemented. The Author refers to this as release 15-Dec-90, an update to the orginal version on disks 318 and 319. Author: Various, Amiga port by Frank Edwards
Family_Sol	A preliminary version of the Authors "Family Solitair" card game. A standard game of Solitair with options for multiple players, sound etc. Binary only. Author: Errol Wallingford
MissileCmd	A fast Missile Command game written in assembly. Features include using a hires interlaced screen, time based events for correct operation on any speed Amiga, multitasking friendly, and sound effects. This is version 2, an update to the version on disk 444, with bug fixes and enhancements. Binary only. Author: Max Bithead

Fred Fish Disk 474

Aequipot	A program that renders multicolor pictures using an algorithm based on electrostatic effects. Renders in low-res and high- res, and in two speed/quality modes. Includes both PAL and NTSC versions of the program. English and German docs. This is version 1.06, includes source in PCQ, freeware. Author: Juergen Matern
AmiDock	AmiDock is an Amiga version of the NeXT's Dock facility. It will open up a small window on your WorkBench full of little IFF brushes, Each brush represents an application, like an ICON but it's a brush. Click on the brush and your application will start. This is version 1.2.4. Shareware, binary only. Author: Gary Knight
CrcLists	Complete CRC check files for disks 401-470 using the brik program. These were made directly from my master disks. This is an update to the lists on disk 401. Author: Fred Fish
Enforcer	Detects/protects against illegal memory hits. Compatible with all OS versions & machines (requires a Memory Management Unit or 68030 processor). The low 1K of memory and all areas that are not RAM are protected from CPU reads or writes. ROM is marked as read-only. Version 2.6f, binary only. Author: Bryce Nesbitt
GreekFont	A 12 point font with Greek letters. Version 1.0. Author: Daniel Moosbrugger
Imperium	Strategic, "RISK" style game for up to four players. Based in the ancient times of Rome, Athens, Alexandria and Carthago. Binary only, shareware ($10), Manx-C source available from the author. English version 1.66E and German version 1.79D. Update to version 1.50E on Disk 362. Author: Roland Richter

Fred Fish Disk 475

AssignX	A 2.0-only utility to create assignments when you get a "Please insert volume" requester. Also lets you cancel the request, forever. Installs by dropping into your WBStartup drawer. This is version 1.0, includes source. Author: Steve Tibbett
Blankette	VERY tiny screen blanker/dimmer. Very nice on your system, very little CPU time, compatible with just about everything. Dims screen rather than going black. Includes assembler source. Author: Max Bithead
CITAS	Convert ILBM To Assembler Source. CITAS allows one to easily put graphics into his/her own programs. CITAS takes a standard IFF ILBM image file and converts it into either assembler or 'C' source code. Designed for blitter image control, all of the necessary labels are generated, along with color map information, mask generation, and other options. This is version 2.0, shareware, binary only. Author: Max Bithead
GadgetED	A program for creating and editing intuition gadgets. Includes a palette editor, generation of either C or assembly source, and binary saving for later loading and editing. Also comes with "PatchGE", a program for converting the original format of GadgetED binaries to be loadable by this and future versions. Version 2.3, an update to version 2.0 on disk 438, includes source. Author: Jan van den Baard
ToolLib	A shared library containing 45 useful functions for all kinds of programs. There are functions for ports, sorting, gadgets, memory, string, directory and file handling, etc. Version 8.1, an update to version 7.6 on disk 438, includes source. Author: Jan van den Baard

Fred Fish Disk 476

Browser	A programmer's "Workbench". Allows you to easily and conveniently move, copy, rename, and delete files & directories from a CLI environment. Also provides a method to execute either Workbench or CLI programs. Version 1.7, an update to version on disk number 180, binary only. Author: Peter da Silva
MED	A music editor much like SoundTracker. A song consists of up to 50 blocks of music, which can be played in any order. Editing features include cut/paste/copy tracks or blocks, changing the vibrato, tempo, crescendo, and note volume. Other features include switching of the low-pass-filter on or off on a per song basis, and a cute little animated pointer of a guy doing "jumping jacks" in time to the music! Improvements include AmigaDos 2.0 compatibility. This is version 3.00, an update to version 2.13 on disk 424. Binary only. Author: Teijo Kinnunen
Mostra	Mostra is a shareware IFF utility featuring real-time unpacking scroll, dozens of options, "smart" analysis of any IFF file (FORMs, LISTs,... also nested ILBM!), total control over display modes, simple slideshow processing, pattern matching, SHAM, an external link to show Dynamic Mode pictures, double buffering, fast decompression, color cycling, TeXdocs, startup files for easy custom configurations and complete WB support, through ToolTypes and Style icons! This is version 1.14, an update to version 1.0 on disk 330. Binary only. Author: Sebastiano Vigna
ToolManager	ToolManager is a full featured program to add programs (either WorkBench or CLI) to the tools menu of the 2.x WorkBench. Programs can be added by dragging their icons onto the ToolManager "config" window or the optional ToolManager icon or by editing the config file. Requires Workbench 2.0. This is version 1.3, an update to FF442. Includes source. Author: Stefan Becker

Fred Fish Disk 477

IRMaster	This is a hardware/software project to allow the Amiga to read an infrared remote control via the parallel port. Includes an ILBM of the schematic for a simple interface to the A1000 parallel port, some modifications are needed for other Amigas. The source code and executable for a reader program are included. For further functionality modifications to the source can be performed. Author: Ron Peterson
MegaBall	This is a new version of the game "Ball" by the same author. It is a Breakout type game, and is very good. Complete with impressive sound. This one's addicting. Binary only. Author: Ed Mackey
NoDelete	This program pops up a requestor to alert you of a file deletion being attempted via DeleteFile() and allows you accept or cancel it. This also pertains to any files you attempt to delete via "delete". Version 1.5a source is included. Author: Uwe Sch"urkamp

Fred Fish Disk 478

LSlabel	A simple label printing utility. Very powerful as the user can/must do a lot of settings by himself. Features include variable linefeeds (in 1/216 inch steps), a very exactly setting of the label length and freely configurable printer codes. Version 1.0, binary only. Author: Stefan Berendes.
MED-Songs	A selection of musical pieces created with MED, the musical editor program (see disk 476 for MED 3.00). Includes MEDPlayer version 3.0. Author: Hans-H. Adam
MP	A small, useful utility for sending any MIDI data back and forth between an Amiga and a MIDI instrument. Helpful for learning about MIDI, writing/debugging MIDI software, figuring out your instrument's system-exclusive implementation, and more. Very versatile. Version 1.0, includes source. Author: Daniel J. Barrett
NewList	A powerful LIST replacement. Supports many features including sorts, character filters, case sensitivity, most options offered by LIST, date construction, UNIX wildcards, and much more. Sort routines are very fast and memory usage is minimal. Version 4.9, an update to version 4.5 on disk 461. Binary only. Author: Phil Dietz

Fred Fish Disk 479

CheckPrt	A small program for checking the presence of a parallel printer from within a script file. Binary only. Author: Tom Kroener
TDP	A small trackdisplay program that uses whatever screen is up front. Binary only. Author: Tom Kroener
UUCP	An implementation of uucp for the Amiga, including mail and news. This is Matt's version for the Amiga, based on William Loftus's Amiga UUCP 0.40 release with news code from his 0.60 release, and months of work by Matt to make fixes and add enhancements. This is version 1.13D, an update to version 1.08D on disk 442, and consists of four parts. Parts 1 and 2 are on this disk, and parts 3 and 4 are on disk 480. Includes source. Author: Various, major enhancements by Matt Dillon

Fred Fish Disk 480

Cryptor	A program that encrypts and decrypts data (files). It uses a mathematical algorithm with password key protection. Has both English and German versions and documentation. This is version 1.0, binary only. Author: Thomas Schossow
NoCare	This utility speeds up your windowing environment. The OpenWindow vector is patched. When someone tries to open a window in the workbench screen, the lower refreshbit in the nw_Flags field is cleared. This way, only NOCAREREFRESH windows will be opened, resulting in faster window movements. Windows opened in customscreens are not affected. This is version 1.5. Assembly source included. Author: Raymond Hoving
TplEdit	A gadtools template editor. It is able to generate nearly standalone C source code. The program will only run under OS 2.0, Kickstart 37.73 or higher. This is version 1.00 Alpha. Includes source. Author: Matt Dillon
UUCP	An implementation of uucp for the Amiga, including mail and news. This is Matt's version for the Amiga, based on William Loftus's Amiga UUCP 0.40 release with news code from his 0.60 release, and months of work by Matt to make fixes and add enhancements. This is version 1.13D, an update to version 1.08D on disk 442, and consists of four parts. Parts 1 and 2 are on disk 479, and parts 3 and 4 are on this disk. Includes source. Author: Various, major enhancements by Matt Dillon

To Be Continued......

In Conclusion

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Accolade
550 S. Winchester Blvd. Ste. 200
San Jose, CA 95128
(408) 985-1700

Animated Pixels
Albemarle House
Osborne Rd.
Southsea, Hants
PO5 3LB United Kingdom

Applied Optical Media
18 Great Valley Pkwy.
Malvern, PA 19355
(215) 889-9564

Capstone
14202 SW 136th St.
Miami, FL 33186
(800) 468-7226

CDTV Publishing
1200 Wilson Dr.
West Chester, PA 19380
(215) 431-9100

Commodore Business Machines
1200 Wilson Dr.
West Chester, PA 19380
(215) 431-9100

Context Systems
The Technology Center
333 Byberry Road
Hatboro, PA 19040
(215) 675-5000

Digigraphic
1 The Terrace
High Street
Lutterworth, Leicestershire,
England LE17 6BA

Discis Knowledge Research
45 Sheppard Ave. East, Ste. 410
Toronto, Ontario,
Canada M2N 5W9
(416) 250-6537

Domark
Ferry House
51-57 Lacy Rd., Putney
London SW151PR, UK

Dominion Software & Design
3328 Oakshade Court
Fairfax, VA 22033
(703) 318-8270

Dr. T's Music Software
100 Crescent Rd.
Needham, MA 02194
(617) 455-1454

Edge Interactive Media
225 South Lake Ave., Ste. M157
Pasadena, CA 91101
(818) 577-9375

Europress Software
Europa House
Adlington Park
Macclesfield, Cheshire
England SK10 4NP

Free Spirit Software
P.O. Box 128, 58 Noble St.
Kutztown, PA 19530.
(215) 683-5609

FTL Games
6160 Lusk Blvd., C-206
San Diego, CA 92121
(619) 453-5711

Gold Disk
5155 SpectrumWay, Unit 5
Mississauga, Ontario,
Canada L4W 5A1
(800) 465-3375

Icom Simulations
648 S. Wheeling Rd.
Wheeling, IL 60090
(800) 877-ICOM

Infogrames
84 Rue de lier Mars
69628 Villeurbranne cedex
France

Interplay Productions
3710 S. Susan, Ste. 100
Santa Ana, CA 92704
(714) 549-9001

Jeriko
5 Bld. Poissoniere
75002 Paris,
France

Lawrence Productions
1800 South 35th Street
Galesburg, MI 49053
(800) 421-4157

Logic Plus
18 Whitesands Grove
MGR Park
Stoke-on-Trent, Staffs, UK

Maxis
Two Theatre Square
Orinda, CA 94563
(415) 254-9700

Merit Software
13635 Gamma Rd.
Dallas, TX 75244
(214) 385-2353

microdeal
P.O. Box 68, St. Austell
Cornwall PL25 4YB, England
(011) 447-266-9692

MirrorSoft
Irwin House
118 Southwark St.
London, England SE1 0SW

Multimedia Corporation
109X Regent's Park Road
London, England, NW1 8UR

On-Line
14 Falcon Way
Clippers Quay
London, E149UP, UK

Psygnosis Limited
29 St. Mary's Court
Brookline, MA 02146
(617) 731-3553

ReadySoft
30 Wertheim Court, Unit 2
Richmond Hill, Ontario,
Canada L4B 1B9
(416) 731-4175

Saddleback Graphics
12812 Garden Grove Blvd.
Unit P
Garden Grove, CA 92643
(714) 741-7093

Sassenrath Research
P.O. Box 1510
Ukiah, CA 95482
(707) 462-4878

Spectrum Holobyte
2061 Challenger Drive
Alameda, CA 94501
(415) 522-3584

Tiger Media
5801 E. Slauson Ave., Ste. 200
Los Angeles, CA 90040
(213) 721-8282

Titus Software
20432 Corisco St.
Chatsworth, CA 91311
(818) 709-3693

UBI Soft
distributed by Electronic Arts
8/10 Rue de Valmy
93100 Montreuil Sous Bois,
France

Virgin Mastertronic International
18001 Cowan St., Ste. A & B
Irvine, CA 92714
(714) 833-8710

Walt Disney Computer Software
500 S. Buena Vista Street
Burbank, CA 91521
(818) 567-5360

Wright Enterprises
Hudson Road
Temple, NH 03084
(603) 878-1491

Xetec, Inc.
2804 Arnold Road
Salina, KS 67401
(913) 827-0685

Xiphias
Helms Hall
8758 Venice Blvd.
Los Angeles, CA 90034
(213) 841-2790

Upcoming CDTV Products

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Logic Plus
Angel of the City
Tiger Media
Blockbusters
Domark
CDTV Disc Jockey
Sassenrath Research
CDTV Sports Football
CDTV Publishing
Drakkhen
Infogrames
Dungeon Master
FTL Games
Family Drug and Poison Information
NE Louisiana Univ.
Fun School (5-7)
Europress Software
Fun School (over 7)
Europress Software
Grolier's Electronic Encyclopedia
Xiphias
Guinness CDTV Disc of Records
CDTV Publishing
Herewith the Clues
Domark
Indiana Jones
CDTV Publishing
Jack Nicklaus at Muirfield Village
Accolade
Living Book Series
Digigraphic
Loom
CDTV Publishing
McGee
Lawrence Productions
Murder Off Miami
Domark
Pacmania
Domark
Secret of Monkey Island
CDTV Publishing
Shadow of the Beast III
Psygnosis Limited
Spy vs. Spy
CDTV Publishing
Time Table of the Arts
Xiphias
Trivial Pursuit
Domark

We're Sorry!

To make room for an ***EXTRA*** measure of Amiga & CDTV coverage this month, we were forced to delete the full-page order form that normally appears on this page.

To order any of the quality AC line of Amiga products, please use the convenient tear-out card found between pages 16 & 17 of this issue. For faster service, pay by Visa or MasterCard and call toll free **1-800-345-3360** from anywhere in the U.S. and Canada!

And furthermore...

COMPUTING FOR THE DISABLED

The Johns Hopkins University, along with The National Science Foundation and MCI Communications Corporation, is holding the **Johns Hopkins National Search for Computing to Assist Persons With Disabilities.** "Computing to Assist Persons With Disabilities" is a national search to discover existing inventions and to inspire new ideas for the application of computing to meet the needs of children and adults with physical or learning disabilities. There will be a $10,000 grand prize and over 100 other awards for the best creations. The potential applications are virtually unlimited. The potential for the role of the Amiga is also unlimited.

This contest is a perfect opportunity to use your Amiga to its fullest potential. Johns Hopkins is encouraging computer users to apply their imaginations to ways and means which these powerful tools may help in the education, training, work, home and community environments of disabled people. The Amiga, with its top of the line graphics, its speech capabilities, and its programming abilities, is perhaps the perfect tool for this purpose.

There are three main categories for entries: Computer-Based Devices, hardware invented or modified for the purpose or working hardware and software that can demonstrate a new application; Software Only, specialized software for standard computers; and Paper Design, written descriptions of ideas not yet implemented. The disabilities to consider when creating with your Amiga are those related to vision, hearing and language, mental retardation, learning disabilities, neuromuscular or neurological disorders, and limitation of movement. Overall, one may consider any single or combination of limitations of functional capabilities including mobility, communication, self-care, and self-direction.

How can the Amiga play an important part? As an Amiga user you are well aware of the computer's superior capabilities. Combine your imagination, knowledge, and Amiga skills to develop applications which will help the disabled in different aspects of every day living. Perhaps you might create a program which uses the Amiga's speech capabilities to read to the blind. Or you may develop a program using the Amiga's sound and music abilities for use in music therapy for autistic children. Educational programs using color and the Amiga's excellent graphics could be created to stimulate the minds of persons with learning disabilities. The possibilities are endless. With the enormous amount of existing programs for the Amiga and your creativity you can be well on your way to creating an application which will be most helpful to persons with disabilities.

The Johns Hopkins National Search is limited to residents of the United States. All invention rights will remain with the contestant. The university and the sponsors of the competition will not be responsible for the confidentiality of the entries. Each entrant must certify to the originality of the invention or creation. Abstracts describing the winning entires will be published in the competition proceedings. Each entrant will receive an "Entry Information Kit" and the entries must conform to the guidelines specified in the kit. Faculty, students, and employees of The Johns Hopkins University and Hospital may participate in the contest but are not eligible for any of the competition prizes. The deadline for contest entries is August 23, 1991.

There will be over 100 awards including a $10,000 grand prize. Contestants submitting the ten best entries selected for the national awards will be invited to exhibit their entries at the Smithsonian Institution in Washington, D.C., on an expense-paid basis to receive their prizes, participate in ceremonies, and a workshop. The contest judging will be by people from technical organizations and groups devoted to the education, research, and advocacy of persons with disabilities. People, who themselves have disabilities, will evaluate entries on the basis of technical merit and functional promise. The decision of the judges will be final in all cases.

Challenge you creativity and put your innovative Amiga to work by helping millions of persons with disabilities live more productive and rewarding lives. Show what the Amiga can really do and participate in this noble cause. For more information about The Johns Hopkins National Search for Computing to Assist Persons with Disabilities and an entry flier write: *Computing to Assist Persons with Disabilities, P.O. Box 1200, Laurel, Maryland 20723.*

RATHER BE FLYING?

Learning to fly a radio-controlled helicopter or plane just got easier. Using the R/C AEROCHOPPER Flight Simulation System on your Amiga puts you as close to real R/C flying as you can get and you don't have to worry about bad weather or crashing. The R/C AEROCHOPPER was developed by Ambrosia Microcomputers and is manufactured by Futaba Corporation. It uses the same transmitter box and controls as Futaba's Conquest Series of radios. It is designed to simulate real flight with the feel of using actual radio hardware.

The system features a number of different aircraft including helicopters, a glider, and an F-18. Amiga graphics include solid realistic backgrounds and detailed, accurate aircraft portrayals, along with superb animation and realistic sound. Unlike other flight simulators, R/C AEROCHOPPER gives you perhaps the most authentic feel from the combination of terrific graphics, sound, and the R/C-like controller. The system was designed with the serious flyer in mind but is also perfect for beginners. Numerous flying conditions can be selected. There are 22 pre-programmed scenarios utilizing any one of seven different aircraft or create your own custom characteristics by modifying any of the 131 individual parameters.

The R/C AEROCHOPPER System is equipped with a disk storage feature which lets you save your creations and share them with other users. To practice certain maneuvers or to make things more challenging, various "camera" control modes are available as well as dual rates, trim adjustment, and even random control glitches. Live action such as firing missiles at targets, dropping bombs, and timed flight are offered. Airplanes have landing gear control and the helicopters can have a ground effect, autorotation, inverted flight, and an idle-up mode. Each R/C AEROCHOPPER Flight Simulation System includes a Futaba Conquest dual joystick "transmitter" box with interface cable, program, and complete owners reference manual. This is a must for Amiga users who'd rather be flying.

R/C AEROCHOPPER, Ambrosia Microcomputer Products, Inc., Suite 371, 98 W. 63rd Street, Willowbrook, IL 60514, (708) 655-0610. Inquiry #231.

R/C-like controller makes R/C AEROCHOPPER very realistic.

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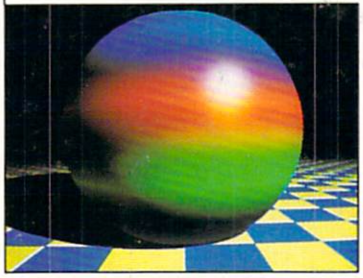
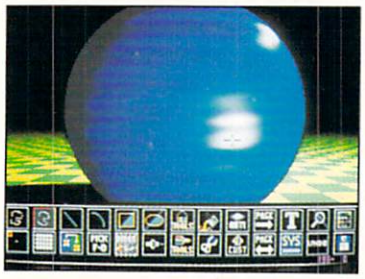
HAM-E

High quality RGB output for your Amiga





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The new HAM-E Plus is an even more potent yet virtually transparent, anti-alias engine which offers near photographic quality images on standard RGB monitors.

No other graphics expansion device offers so much performance and costs so little! And all the software to run it is **free.** Even upgrades!

There's not enough room to cover all the features of this system, so here's just a few.

SYSTEM FEATURES

- Paint, render, convert and image processing software
- 18/24 bit "pure" modes
- 256/512 color register modes
- RGB pass through
- Screen overlay/underlay
- Screens pull up/down & go front/back
- View with any IFF Viewer
- Animate via ANIM or Page Flipping
- Works with DigiView™
- Completely blitter-compatible
- NTSC encoder compatible
- S-VHS encoder compatible
- PAL & NTSC compatible
- Uses *only* RGB port
- FCC Class B. UL Listed
- Works w/std Amiga monitors
- Does *not* use Amiga power

PAINT FEATURES

- Custom brushes use blitter
- RGB, HSV, HSL, CMY palette
- RGB and HSV spreads
- Extensive ARexx™ support
- 10 Color Cycle/Glow ranges
- Range pong, reverse, stop
- Smooth zoom, rotate or scale
- Area, edge, outline fill/overfill
- Dithered 24 bit fill mixing
- Anti-alias with any tool or brush
- Loads, shows GIF™ *exactly*
- "C" source code available free
- Upgrade from BBS 24 hrs/day
- Color or 256 greys painting
- 256 color stencils
- Matte/color/anti-alias/cycle draw
- Prints via printer device
- Auto enhance std IFF palettes
- Writes IFF24, GIF,™ HAM-E

IMAGE COMPATIBILITY

- 24 bit IFF, 24 bit IFF with CLUT chunks
- 2 to 256 color standard IFF, half bright
- HAM, DKB and QRT trace
- RGB8 and RGBN
- Targa™
- GIF™
- Dynamic HiRes™
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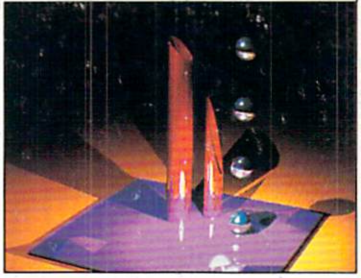

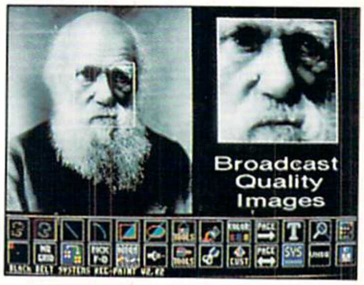

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